

**MAKERERE**  **UNIVERSITY**

**DIRECTORATE OF RESEARCH AND GRADUATE TRAINING**

**BOOK OF DOCTORAL CITATIONS**  
**72<sup>nd</sup> CONFERENCE CEREMONY**



**DOCTORAL CONFERENCE CEREMONY**

**23<sup>rd</sup> – 27<sup>th</sup> May, 2022**

## MESSAGE FROM THE DIRECTOR



Here it is at last – the 72<sup>nd</sup> Doctoral Conferment Ceremony 2022.

To the Graduands, **Congratulations on your accomplishment.**

Today's ceremony is both the destination you have been working toward and the launching pad for your future research careers. I am genuinely proud and delighted to report that you have worked so hard to hone and perfect your skills, learning from and inspiring one another, in your diverse fields of study.

In this summary book of citations, you will find information on the key results from the different research projects undertaken. The common thread running through all of these research projects is that they apply incisive analysis to ongoing problems and unresolved issues, yielding fresh evidence and proposals for resolution. I am sure that these theses, grounded as they are in reliable data and deep analysis, will serve as important guideposts for the future. There are many studies with enticing titles that made me want to read on and learn about Makerere's research agenda. I am awed by the diversity of the fields covered, and positive that such diversity, creativity, and vision will lead to world-changing concepts and innovations.

My message to the graduands is the same: As your doctoral study programme comes to an end, it is wonderful to go down memory lane, remembering the first day you entered the gates of Makerere University, remembering all your accomplishments, remembering your Supervisors, remembering how your family stood by you, and most importantly all the wonderful friends you made through the PhD@Mak Forum!

One final thought – graduation should never mean goodbye. As alumni, I sincerely hope you will remain connected to Makerere University in some way. However, should need further research mentorship, please do not hesitate to contact the Director via email: [director.rgt@mak.ac.ug](mailto:director.rgt@mak.ac.ug); Alt: [mbuyinza.rgt@mak.ac.ug](mailto:mbuyinza.rgt@mak.ac.ug).

On behalf of all Alumni colleagues, I extend my very best wishes and warmest congratulations.

Buyinza Mukadasi  
**Professor and Director**

**MONDAY 23<sup>rd</sup> May 20122**

**COLLEGE OF HEALTH SCIENCES**

**The Principal College of Health Sciences to present the following for the conferment of the**



**Degree of Doctor of Philosophy**

AGABA Bekiita Bosco

***Molecular Epidemiological Surveillance of pfhrp2 and pfhrp3 gene deletions in Plasmodium falciparum parasite populations in Uganda***

Mr. AGABA Bekiita Bosco investigated the biological and molecular changes in malaria parasites that make them difficult to be detected in malaria infected individuals. Once these parasites evade detection, individuals remain untreated leading to severe disease and risk of mortality. The results provide the first large-scale evidence reporting the presence of pfhrp2/3 gene deletions in *P. falciparum* parasites in Uganda and demonstrated that gene deletions are not confined but rather spread across regions. Further, the study showed that these parasites emerge independently and spontaneously. The findings inform national guidelines for malaria case management and policy for the introduction and deployment of new malaria diagnostic tests. The study was funded by the NIH-Fogarty Malaria training grant and the WHO collaborating center in Australia. The work was supervised by Prof. Moses R. Kanya, Prof. Chae Seung Lim, Dr. Adoke Yeka and Dr. Samuel Nsohya.



Conferment of the  
**Degree of Doctor of Philosophy**

AMONGIN Dinah

***Understanding Trends and Trajectories of Repeat Adolescent Birth in Uganda***

Ms. AMONGIN Dinah studied the magnitude and explanation for repeat adolescent birth (i.e. a second or higher order live birth before age 20 years, following a first birth before age 18 years) and its later life consequences in Uganda. Her results revealed high repeat adolescent births (over 1 in 2) with slight decline in the 30 years of observation (1988/89-2016) although more women over the years wanted to have this repeat birth later. Results suggest life-long negative socio-economic and reproductive health outcomes among women with repeat adolescent births compared to those without. Further, escalation of the socio-economic distress following first birth, domestic violence, and partner coercion, predisposed adolescent girls to sexual exploitation and unwanted marriages. Interventions should focus on preventing repeat adolescent pregnancy and increasing opportunities for adolescent mothers, with a primary focus on: improving school retention/continuation, strengthening family planning services, and preventing early marriage. This study was funded by Training Health Researchers into Vocational Excellence (THRiVE-2)

and was supervised by Assoc. Prof Annetee Nakimuli, Assoc. Prof Lenka Benova, Assoc. Prof Lynn Atuyambe, and Assoc. Prof Claudia Hanson.



Conferment of the  
**Degree of Doctor of Philosophy**

KAPAATA ANDAMA Anne

***Genotypic And Phenotypic Characterization Of Hiv-1 Transmitted/Founder Viruses And Their Effect On Cytokine Profiles And Disease Progression Among Acutely Infected Ugandans***

Ms. KAPAATA ANDAMA Anne looked at Genotypic and Phenotypic Characterization of HIV-1 transmitted/founder viruses and their effect on cytokine profiles and disease progression among acutely infected Ugandans. Subtype analysis of inferred transmitted/founder viruses showed a high transmission rate of inter-subtype recombinants (69%) involving mainly A1/D, while pure subtype D variants accounted for one-third of infections (31%). The signal peptide-C1 region and gp41 transmembrane domain were hotspots for A1/D recombination events. She documented diversity in the functional protein domains across the Gag-Pol region of the HIV virus and identified differences in the Gag-p6 domain that were frequently associated with higher in vitro replication. She also found that HIV-1 subtype D infections had higher concentrations of different cytokines than subtype A infections. Cytokines IL-12/23p40 and IL-1 $\alpha$  were associated with faster CD4+T cell count decline while basic fibroblast growth factor was associated with maintenance of CD4+T cell count above 350 cells/microliter. This work was funded by the International AIDS Vaccine initiative and supervised by Prof. Pontiano Kaleebu, Eric Hunter and Moses Joloba and Dr Jesus Salazar Gonzalez.



Conferment of the  
**Degree of Doctor of Philosophy**

BAKESIIMA Ritah

***Modern contraceptive use among female refugee adolescents in northern Uganda: prevalence, effect of peer counselling, adherence and experiences***

Ms. BAKESIIMA Ritah studied modern contraceptive use among female refugee adolescents in northern Uganda: the prevalence, effect of peer counselling, adherence, and experiences. She found that the use of modern contraceptives among sexually active adolescents was very low with less than 10% using a method, and yet they wanted to delay child birth. This highlights a high unmet need of contraceptives in this population. She also found that peer counselling had a positive effect on acceptance of modern contraceptives; participants who received peer counselling were more likely to accept a contraceptive method compared to those who received routine counselling. The commonest reasons for non-acceptance of a method were partner prohibition and fear of side effects. She recommends that refugee adolescents, together with their partners, are further sensitized of the dangers of teenage pregnancy, and the benefits of contraception in preventing

teenage pregnancy and associated complications. This research was funded by SIDA and supervised by Assoc. Prof Elin Larsson, Dr. Jolly Beyeza-Kashesya, Prof. Kristina Gemzell-Danielsson, Dr. Amanda Cleeve, and Dr. Rose Chalo Nabirye.



Conferment of the  
**Degree of Doctor of Philosophy**

BAYIGGA Lois  
***Role of Vaginal Microbiome in Host Susceptibility of HIV Infection in Pregnant Ugandan Women: Inflammatory Response and Epithelial Barrier Integrity***

Mr. BAYIGGA Lois investigated the vaginal microbial diversity and its immune-modulatory effects on host susceptibility to HIV among pregnant women in Uganda. In the results, the vaginal microbiome of pregnant women in the cross-sectional study was categorised into four distinct cervicotypes. In conclusion, African women had a more diverse vaginal microbiome relative to women in the America and Europe as observed in the literature. This work was supervised by Prof. Damalie Nakanjako, Dr. David Patrick Kateete, Dr. Musa Sekikubo and Prof. Deborah Anderson.



Conferment of the  
**Degree of Doctor of Philosophy**

MIJUMBI Deve Rhona's  
***Rapid Response Services to Support Policymaking in Uganda***

Ms. MIJUMBI Deve Rhona evaluated the rapid response mechanisms aimed at providing evidence for policymaking in Uganda, including their feasibility and establishment, their uptake amongst the users along with these users' experiences with them. She was able to determine and confirm the feasibility of an RRS in Uganda and map the establishment, growth, and evolution of the service. She was also able to document the important factors that led to the establishment of the service, then used this information to develop a theoretical framework combining the structural and temporal components of the development of an RRS and the factors important at each stage. She also established the important factors that influence the uptake of the RRS amongst its actual and potential users and also explored the users' experience with the rapid response (RR) briefs produced by the RRS and used her findings to improve these briefs. The findings from this work are important to enable the use of evidence for decision-making at different levels of governance globally, especially in complex situations where time is barred. The work was funded by the International Development Research Center's International Research Chairs Initiative and supervised by Prof. Nelson Sewankambo, Prof. John Lavis, and Dr. Andrew Oxman.



Conferment of the  
**Degree of Doctor of Philosophy**

MUKURU Moses

***An analysis of evolutions in maternal health policies and implementation adaptations in Uganda during the MDG period (2000-2015)***

Mr. MUKURU Moses analysed Uganda's maternal health policies introduced during the fifteen years of the Millennium Development Goals (MDG period) to understand policy failure. This followed the persistence of high preventable maternal mortality, which closed at a Maternal Mortality Ratio (MMR) of 368 deaths per 100,000 live births in 2015 below the target of 131 deaths per 100,000 live births. While most studies explain the failure to achieve maternal health policy targets from epidemiological, interventional and health systems perspectives, this study examined how elite interests underpinning maternal health policies, policy design and implementation influenced maternal health policy failure in Uganda. The study found that the failure to achieve policy targets and persistence of high maternal mortality despite introducing fourteen policy shifts emanated from a complex interplay of factors at the policy formulation, design and implementation levels. Policy elites developed policies which mainly served their selfish political and economic interests while paying limited attention to the goal of reducing maternal mortality. The policy instruments introduced were incoherent, inconsistent and incomprehensive to cover all the causes of maternal mortality rendering the policies ineffective in design. Consequently, maternal health policies could not be fully operationalised at the frontline to support timely response to all the emergencies that cause maternal death. The study was funded by DAAD, the Alliance for Health Policy and Systems Research, Switzerland, through the University of Cape Town, South Africa, the "Support Policy Engagements for Evidence informed (SPEED)" and was supervised by Professor Freddie Ssengooba and Dr Suzanne Kiwanuka.



Conferment of the  
**Degree of Doctor of Philosophy**

MUSABA Milton

***Obstructed labour in Eastern Uganda: risk factors, electrolyte derangements, and effect of bicarbonate on obstetric outcomes***

Dr. MUSABA Milton studied the risk factors, electrolyte derangements, and effect of bicarbonate on obstetric outcomes among women with Obstructed labour (OL). Failure of a woman to give birth normally is called OL. It is often associated with poor outcomes for both the mother and baby, if the intervention (surgical) is not timely. In Uganda, one in five maternal deaths and two in five perinatal deaths are attributed to OL. The risk factors were being a first-time mother, using herbal medicines, and being referred in labour. While being married, having a delivery plan, and an educated partner were protective. Perioperatively, multiple electrolyte derangements were common. Perinatal death was four times higher than the national average, and the predictors were being referred and having a high maternal blood lactate level. Sodium bicarbonate infusion had no

significant beneficial or harmful effect. Developing birth and complication readiness plans may help to minimize delays and multiple referrals in case of an emergency. To minimize the effects of metabolic and electrolyte derangements in OL, healthcare providers need to ensure that these patients are well rehydrated especially during transfer to a higher facility. This study was funded by NORHED/NORAD and was supervised by Prof. Grace Ndeezi, Prof. Julius N. Wandabwa, Dr. Justus K. Barageine, and Prof. Andrew D. Weeks



Conferment of the  
**Degree of Doctor of Philosophy**

NAMAZZI Gertrude (Ms)  
***Burden and risk factors for child developmental disability among infants in Busoga region, in Uganda***

Dr. NAMAZZI Gertrude investigated the burden and risk factors for child developmental disability among infants in Busoga region, in Uganda. The study revealed a high burden of child developmental disability at population level and among preterm babies. The caretakers of children with developmental disability expressed emotional stress and an impoverishing experience with limited support from the community and the health system. The key risk factors included: birth asphyxia, malnutrition, newborn infections, and a mother having more than three children. The study findings indicate the need to improve the quality of care during delivery and the postnatal period to prevent birth asphyxia, neonatal infections and malnutrition so as to curb the burden of child developmental disability. In addition, parents should limit the number of children to those they are able to nurture and care for adequately. The study recommends to government to improve the health facility readiness to respond to caretakers' needs and the needs of children with developmental disability so as to empower families, while respecting their beliefs, to cope with adversity. The study was funded by SIDA and was supervised by Prof. James Tumwine, Assoc. Prof. Peter Waiswa and Assoc. Prof. Helena.



Conferment of the  
**Degree of Doctor of Philosophy**

NANKYA Mutyoba Eron Joan  
***Hepatitis B. Among Ugandan pregnant women: Studies on Epidemiology, knowledge, perceptions and behavioural intentions***

Ms. NANKYA Mutyoba Eron Joan investigated the epidemiology, knowledge, perceptions and behavioural intentions associated with Hepatitis B among Ugandan pregnant women. The study was conducted among pregnant women attending routine Antenatal Care in public health facilities in Kampala, Wakiso and Arua Districts. In the results, the overall prevalence of Hepatitis B. Virus infection was 6.1%. Pregnant women in Uganda have a high burden of the virus with significant regional differences, low knowledge and inaccurate perceptions of the virus. This study was funded by SIDA and was supervised by Assoc Prof. Ponsiano Ocama, Assoc Prof. Fredrick Makumbi and Assoc Prof. Lynn Atuyambe.



Conferment of the  
**Degree of Doctor of Philosophy**

ODEI OBENG-AMOAKO Gloria Adobea

*Retrospective analysis of concurrently wasted and stunted children 6-59 months in the outpatient therapeutic feeding programme in Karamoja: burden, characteristics, detection, response to treatment and outcomes*

Ms. ODEI Obeng-Amoako Gloria Adobea examined the burden, characteristics and detection of concurrently wasted and stunted among children under 5 years, and their response to treatment and outcomes in the outpatient therapeutic feeding programme in Karamoja. She found that 5% of children under-5 years in Karamoja were wasted and stunted concurrently. Concurrent wasting and stunting was common among children younger than 3 years and particularly males. She identified optimal weight for age z-score (WAZ) and mid upper arm circumference (MUAC) thresholds for detecting children with concurrent wasting and stunting. Nearly half (49%) of children with severe acute malnutrition receiving outpatient therapeutic care were concurrently wasted and stunted and had lower recovery rate. The study will inform decision-making on integrated wasting and stunting prevention and treatment policy and programme. This study was funded by Carnegie Corporation of New York through RUFORUM, UNICEF Uganda; and African Union and European Union-Intra-ACP Mobility Partnering for Health Professionals Training in African Universities (P4HPT) and supervised by Assoc. Prof Charles A. S. Karamagi and Dr. Henry Wamani

## **COLLEGE OF NATURAL SCIENCES**

The Principal College of Natural Sciences to present the following for the conferment of the



### **Degree of Doctor of Philosophy**

ADAKU Christopher

*Chemical Structure and Properties of Anthocyanins from Selected Plant Species from Uganda.*

Mr. ADAKU Christopher investigated a class of bioactive phytochemicals known as anthocyanins from selected indigenous plants, with the purpose of identifying ingredients for the development of nutraceuticals and for application as natural food colourants. This follows the increasing availability of natural health products with unsubstantiated health claims and the health concern associated with the use of synthetic food colourants. During the study, eleven new and seven known compounds were isolated and their properties deciphered. The compounds exhibited colour and stability required for food colourant application and showed remarkable antioxidant activity which is indicative of their potential beneficial health effects. These findings will lead to the development of nutraceuticals and other natural health products with guaranteed safety and efficacy. The isolated compounds can also be used as natural functional food colourants, especially for colouring refrigerated foods such as yoghurt, ice cream and beverages. This study was funded by SIDA through DRGT and MUTHI and supervised by Prof. Byamukama Robert and Prof. Kiremire Bernard (RIP).



### Conferment of the **Degree of Doctor of Philosophy**

ANYWAR Godwin

*Ethnopharmacology, cytotoxicity, antiviral and immunomodulatory profiles of medicinal plant species used by herbalists in treating people living with HIV/AIDS in Uganda*

Mr. ANYWAR Godwin investigated the cytotoxicity, antiviral activity and immunomodulatory potential of medicinal plant species used by herbalists to treat people living with HIV/AIDS (PLHIV) in Uganda. The study was motivated by the fact that PLHIV widely use untested herbal medicines even when already on antiretroviral treatment. The results from this study showed several plant species are mainly used to treat opportunistic infections among PLHIV. Two of the most widely used plant species, *Albizia coriaria* and *Warburgia ugandensis* were highly toxic to the human glioblastoma cell line used (U87.CD4.CXCR4). Regression analysis also showed that the plant extracts had varying selective anti-HIV-1 activities in vitro. The plant extracts also elicited different immune responses by stimulating different cytokines from Peripheral

Mononuclear Blood Cells (PMBCs). Godwin recommend testing of crude plant extract mixtures used by the herbalists, and isolating and testing pure compounds from the most promising plant species. The study was funded by the Consortium for Advanced Research Training in Africa (CARTA), and DAAD and supervised by Prof. Esezah Kakudidi, Dr. Andreas Shubert, Prof. Robert Byamukama and Prof. Christian Jassoy.

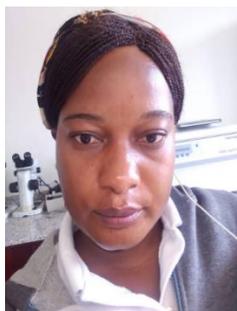


Conferment of the  
**Degree of Doctor of Philosophy**

ENEKU John Paul

*Optimization of the electrical resistivity of magnetron sputtered aluminium and boron co-doped zinc oxide thin films for solar cells.*

Mr. ENEKU John Paul investigated co-doping of zinc oxide thin films with both aluminium and boron elements to develop a transparent thin film material of very low electrical resistivity for application as a transparent front electrode in thin film solar cells. This offers a low cost and eco-friendly alternative to the costly and toxic Indium Tin Oxide (ITO) electrode which currently dominates the solar cell market. The thin film based solar cells have the potential to significantly lower the price of photovoltaics based electricity. The investigation established that the co-doped zinc oxide thin film material can be used effectively as a transparent electrode in thin-film solar cells and can replace the costly standard Indium Tin Oxide (ITO). This study was funded by Makerere University and International Science Program (ISP, Sweden) and supervised by Prof. Tom Oti and Prof. Julius Mwabora.



Conferment of the  
**Degree of Doctor of Philosophy**

BUTTIBWA Mary

*Utilizing heated pollen and androgenesis pathways for the production of haploids in cassava*

Ms. BUTTIBWA Mary investigated how heat-treatment of pollen facilitates production of haploids in cassava. Pollen, a fine powdery substance that comes from the male part of flowers and an equivalent of sperms animals, can be heat-inactivated and used hasten cassava embryo development. Because cassava's reproduction cycle is too long it is difficult to quickly develop new varieties. The haploid technology can shorten this by 50%. Using heated pollen in pollination fostered the development of cassava embryos that further grew into haploid plants in a short time. The heated pollen germinated on the stigma but no fertilization was achieved; however, embryo development was stimulated. Early embryo rescue techniques rescued immature embryos on an artificial growth medium and re-generated into plants. This work contributes to the genetic improvement of cassava. The study was funded by the Bill and Melinda Gates Foundation through

The International Centre for Tropical Agriculture and was supervised by Prof. Arthur Tugume and Dr. Robert Kawuki.



Conferment of the  
**Degree of Doctor of Philosophy**

INUWA Badamasi

*Effect of xenoestrogenic substances on fish health and reproductive potential of Nile tilapia, Nile perch and lungfish from two-distinctly polluted sites of Lake Victoria: the “more polluted”*

Mr. INUWA Badamasi studied the effect of xenoestrogenic substances on fish health and reproductive potential of Nile tilapia, Nile perch and lungfish from two-distinctly polluted sites of Lake Victoria: the “more polluted” (Kasenyi, Ggaba, Port bell, Jinja) and the “less polluted” (Kasensero, Bale, and Bukakata). The motivation for this research was the decline in the wild fish stocks population of Lake Victoria, attributable to several factors, including pollution. Specifically, the study examined the liver conditions and gonadal development of fishes under different levels of pollution. Severe liver alterations were higher in fishes from more polluted compared to those from less polluted areas. Indeed, the chemical contamination of Lake Victoria could have caused the liver lesions and other changes in the fishes. Overtime, such chemical contamination could lead to negative impacts on the consumption of fish and fish products if actions are not taken to mitigate the risks. This study was funded by the Nigerian Federal Ministry of Education and supervised by Assoc Prof Charles Masembe and Dr. Robinson Odong.



Conferment of the  
**Degree of Doctor of Philosophy**

KITO Luliro Silas

*The Numerical Range of Linear Relations and Stability Theorems.*

Mr. KITO Luliro Silas studied the numerical range and stability theorems of linear maps on some mathematical spaces with the purpose of establishing the existence and uniqueness of solutions (solvability) to linear relation inclusions. In this study, he explored the effects of small alterations on certain maps between special spaces that are of mathematical interest in solving certain differential equations. The study found that within a certain degree of change, a small alteration on the map will not affect a particular set of characteristics of the map. These results are useful but not limited to; solving problems formulated when modelling airflow around an obstruction for example calculation of forces and moments on aircrafts, modelling fission weapon detonation, determination of mass flow rate of petroleum through pipelines, predicting weather patterns and ocean currents, solving fluid dynamics problems that require computation of fluid properties such as flow velocity, pressure, density and fluid temperature as functions of space and time. This study was funded by SIDA and was supervised by Assoc. Prof. Gerald Wanjala, Dr. Saul H. Nsubuga, Dr. Vincent. A. Ssembatya and Dr. Alex B. Tumwesigye.



Conferment of the  
**Degree of Doctor of Philosophy**

KYOMUHANGI Annet (Ms)  
***Reduced Modules Relative to Functors***

Ms. KYOMUHANGI Annet's study focused on the description of reduced modules and their dual using functors. She introduced and studied properties of a functor that measures how far a module defined over a commutative ring is from being reduced. She also found a machinery that allows one to associate a nil ideal to every ring. Since reduced modules are dualisable, Annet studied properties of their dual known as coreduced modules. She further introduced functors that describe coreduced modules and studied their properties. Moreover, she found that reduced modules simplify computations of local cohomology while coreduced modules simplify computations of local homology. The study was funded by Makerere-Sida bilateral programme (2015-2020); Project 316: Capacity building in Mathematics and its applications. Ms. Kyomuhangi was supervised by Dr. David Ssevviiri and Dr. Alex Samuel Bamunoba, both from Makerere University.



Conferment of the  
**Degree of Doctor of Philosophy**

MAYANJA Edison  
***Mathematical Models for HIV-HCV Co-infection Dynamics under Various Control Strategies***

Mr. MAYANJA Edison formulated mathematical models to study the dynamics of Human Immunodeficiency Virus (HIV) and Hepatitis C virus (HCV) co-infection. The HIV-HCV co-infection mathematical models which had been developed before, either ignored infection stages or considered HCV in only two stages of infection: the acute and chronic infection. However, the chronic stage of HCV is very long and consists of infected individuals that are asymptomatic yet infectious. Thus, this required deep analysis that had not been fully elucidated. In his study, he analysed the HCV chronic stage split it into: before onset of cirrhosis and its complications (Latent stage) and after onset of cirrhosis (Advanced stage). He used these mathematical models to investigate how HIV infection impacts the dynamics of HCV infection and vice versa. The study revealed that, increasing the rate of enrolment on HIV treatment reduces HCV prevalence and vice versa. Transmission probability per sexual contact and average number of sexual partners acquired per year were equally likely to result into increased HIV and HCV infections and these parameters were the most sensitive in increasing each of HIV and HCV infections. The study was funded by SIDA and was supervised by Prof. Livingstone S. Luboobi, Prof. Juma Kasozi, and Dr. Rebecca N. Nsubuga.



Conferment of the  
**Degree of Doctor of Philosophy**

NABAWANDA Olivia (Ms.)

*Flattened partitions: Pattern Avoidance and Behavior of Permutation Statistics.*

Ms. NABAWANDA Olivia studied a sorting procedure (run-sort function) on permutations, where runs are rearranged in lexicographic order. The aim of the study was to investigate the behavior of the run-sort function with different permutation statistics namely runs, descents, peak-values and left-right minima. Olivia used Mathematica, a computation/mathematical software to generate the necessary data, which in turn she used in combination with bijective proofs and generating functions as the main tools. New combinatorial interpretations to several counting sequences namely A124324, Catalan, Fibonacci, Motzkin and Powers of two among others were provided as already indexed on the On-line Encyclopedia of Integer Sequences (OEIS) database, hence contributing to the existing body of knowledge. She also proved that the descent generating polynomials for these permutations are real rooted, and satisfy an interlacing property similar to that satisfied by the Eulerian polynomials, which are known to be real-rooted. Moreover, the run-sort function was found to possess interesting probability distribution properties. The research findings exhibited an interplay between discrete mathematics, probability theory and complex analysis. The study was funded by SIDA and supervised by Dr. Alex Samuel Bamunoba, Prof. Paul Vaderlind and Prof. Fanja Rakotondrajao of Antananarivo.



Conferment of the  
**Degree of Doctor of Philosophy**

NALULE Rebecca Muhumuza(Ms)

*Hierarchical Models and Spatio-Temporal Processes In Data Analysis*

Ms. NALULE Rebecca Muhumuza studied Hierarchical Models and Spatio-Temporal Processes in Data- Analysis with the aim of analyzing data which possesses both temporal and spatial dependence. She developed a non-linear general spatio-temporal model by extending Serfling's model. Rebecca applied the theoretical findings to data of an outbreak of influenza in Southern Germany between 2001 and 2007. She also extended the random effect model by introducing the correlation coefficient between random effects in its definition. She again considered the problem of Bayesian estimation of heterogeneity parameter in the generalized random effects model where a comparison between the obtained results with the existing approaches was made. Rebecca used the findings for consensus building in meta-analyses of measurement results for the Newtonian constant of gravitation data and for the effectiveness of antiretroviral pre-exposure prophylaxis in preventing HIV infection. The study was funded by SIDA and was supervised by Prof Olha Bodnar, Dr. John Bosco Asimwe and Dr. Rebecca N. Nsubuga.



Conferment of the  
**Degree of Doctor of Philosophy**

NANFUKA Mary(Ms)

***The use of Splines for solving ill-posed problems, with application to the Cauchy problems for the Heat and Helmholtz equations***

Ms. NANFUKA Mary developed a regularization procedure based on splines. The procedure was used to solve the Cauchy problems for the heat and Helmholtz equations, which are ill posed problems. The Cauchy problem for the heat equation had been previously solved by the Fourier transform method. The method, assumed that the time derivative, represented a periodic function which is not realistic. Thus, as an alternative, Mary approximated the time derivative by a cubic smoothing spline. The spline method effectively bounded the errors in the output solution according to the stability estimates. The Cauchy problem for the Helmholtz equation was regularized, by introducing a bounded approximation of the second derivative in the x-variable using cubic smoothing splines. A bound for the approximate derivative was derived. The stability estimates, showed that the method worked pretty well and produced accurate results. The newly developed method was applied to an industrial setting for determining the surface temperature of steel and good results were achieved. The method is recommended for use for the solution to inverse problems that occur in the engineering and medical fields. The research was funded by Sida and supervised by Dr. Fredrik Berntsson, Dr. Godwin Kakuba and Assoc Prof. John Mango.



Conferment of the  
**Degree of Doctor of Philosophy**

OCHEN William

***Measurement and Modelling of Residual Stress in Porcelain Tiles Formulated from Different Quartz Particle Sizes in Uganda***

Mr. OCHEN William studied residual stress in porcelain tiles formulated from different quartz particle sizes in Uganda. He measured residual stress using X-ray diffraction method, and modeling based on finite element method using abaqus software. His study was prompted by numerous complaints concerning the strength of the locally manufactured tiles. His study found out that residual stress decreases with an increase in quartz particle size over a range of 45-200 $\mu\text{m}$ . The decline in residual stress is attributed to the formation of cracks, which affects strength and hardness of the tiles. He further noted that upon sintering at 1300C, tiles with quartz particle size of  $\leq 90\mu\text{m}$  exhibited properties that satisfied the ISO 13006 standard. His study therefore recommends the idea of fine quartz milling in a range of not more than 90 $\mu\text{m}$ . This study was funded by DAAD and supervised by Prof. Florence Mutonyi D'ujanga and Dr. Bosco Oruru.



Conferment of the  
**Degree of Doctor of Philosophy**

OKELLO Omwonylee Joseph  
*Limiting Behaviours of the Longest Gaps Between Occurrence Epochs in Poisson Processes.*

Mr. OKELLO Omwonylee Joseph investigated the asymptotic properties of longest gaps between occurrence epochs in Poisson processes using the theory of large deviations, based on the laws of large numbers. To do this, the global estimation of the distribution functions of longest gaps was derived with the help of discretization argument and the Slivnyak's formula of Palm theory. The derived global estimation was then used to achieve Laplace transform asymptotics of the longest gaps. Through the application of Fenchel-Legendre transform, it was found out that the longest gaps satisfy two large deviation principles with exponential and power rate functions. Since this study was about the probabilistic analysis of rare events, the results not only fill the literature gaps but also provide a very useful planning tool to insurance companies, risk analyst, department of disaster preparedness, operation managers and others. The study was funded by SIDA and was supervised by Dr. Xiangfeng Yang; Dr. Richard Awichi Opaka and Dr. Fred Mayabala.



Conferment of the  
**Degree of Doctor of Philosophy**

SSENKUNZI Richard Cliffe  
*Modelling Precipitable Water Vapour Using Global Navigation Satellite System Data over the East African Tropical Region.*

Mr. SSENKUNZI Richard investigated the temporal and spatial variability of the zenith total delay and precipitable water vapour (PWV) data over the East African tropical region. The PWV data was collected from 13 geodetic permanent GNSS stations for the years 2013 to 2016. Lack of key variables such as the atmospheric water vapour, has been affecting the accuracy of weather predictions over the East African tropical region. The lack of this important parameter has been partly due to insufficient data and very scarce and unreliable tropospheric water vapour monitoring instruments in the region. In this study, the PWV, pressure and the weighted mean temperature linear models have been developed. The site-specific models developed can be utilized to supplement the GNSS and the weather stations data over the thirteen stations since they can provide estimates of nearly a similar degree of precision compared to the measured values. The study was funded by the African Development Bank and supervised by Prof. Florence Mutonyi D'ujanga and Dr. Bosco Oruru.



Conferment of the  
**Degree of Doctor of Philosophy**

WAMONO Felix

***Contributions to reduced rank regression modelling with applications to small area estimation.***

Mr. WAMONO Felix studied the problem of decomposing residuals in the GMANOVA-MANOVA model with rank restrictions on parameters with applications in small area estimation. Firstly, Residuals in the GMANOVA-MANOVA model with rank restrictions on the mean parameters was considered. The main objective was to define residuals useful for evaluating the reduced rank restriction model. We decomposed linear spaces into four subspaces as it can be done for the Extended Growth Curve model with two "profiles". The new residuals were defined by orthogonal projections on these subspaces. It was discussed how the new residuals could be used to test model assumptions. Secondly, Survey data from Uganda, including the 2014 Uganda Population and Housing Census data was analysed using small area estimation methodology. The GMANOVA-MANOVA model with rank restrictions on parameters was used to estimate the small area means. This study was funded by SIDA and was supervised by Prof. Dietrich von Rosen, Prof. Martin Singull, Assoc. Prof. Leonard Atuhaire and Dr. Innocent Ngaruye.

## **SCHOOL OF LAW**

The Principal School of Law to present the following for the conferment of the



### **Degree of Doctor of Laws**

ADOCH Caroline (Ms)

*Access to Gender Justice in Uganda: A Feminist Analysis of the Experiences of Rape Victims in the Reporting and Prosecution Processes*

Ms. ADOCH Caroline undertook a feminist analysis of how victims of rape experience the criminal justice system as they report and prosecute cases and the impact that this has on their access to justice. The study found that victims of rape who report and prosecute cases do so in a patriarchal colonial criminal justice system that is massively rigged against them; that, rape survivors are re-traumatized in a context fraught with shame, stigma and victim blaming in a criminal justice framework where they have no legally defined position, rights or voice. Ultimately, the criminal justice system does not provide substantive access to justice for women who report and prosecute cases of rape; instead they experience the process as a series of continued gendered violations. The study concludes that many of the difficulties that women face in the criminal justice system are an inherent aspect of the adversarial criminal justice system and cannot be wholly addressed by legal and policy reforms without rooting out those patriarchal structures and legacies. The study recommends a recourse to restorative justice which can provide comprehensive justice and accountability for rape survivors. The study was funded with partial tuition support by Makerere University and CivSource Africa and was supervised by Prof. Sylvia Tamale and Prof. Christopher Mbazira.

**TUESDAY 24<sup>th</sup> May 20122**

**COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES**

The Principal College of Agricultural and Environmental Sciences to present the following for the conferment of the



**Degree of Doctor of Philosophy**

ABEN Charles

*Participatory Land use governance and livelihoods in Awoja Watershed, Uganda*

Mr. ABEN Charles examined the effects of participatory natural resource governance on livelihoods in Awoja watershed in Uganda. In particular, the study assessed the contribution of local people's participation to policy implementation. Further, the effects of social, economic and political motivation on actor involvement in the participatory governance were examined. The results suggest that the effective participation was contingent on the motivation of different actors involved in watershed management. This study was funded by DANIDA and was supervised by Dr. Okiror, Prof. Jacob Agea and Dr. Esbern Friis Hansen.

**Degree of Doctor of Philosophy**

ALEXANDER Noah Ruley Jane

*Bioremediation of Petroleum Contaminated Soils using Native plants and their Rhizobacteria in the Sudd regions of South Sudan*

Ms. ALEXANDER Noah Ruley Jane's study was to enhance bioremediation of Petroleum Hydrocarbon-(PHC) Contaminated soils for increased agricultural productivity of the Sudd region of South Sudan. Specially, the study examined the native plant species abundant in petroleum hydrocarbon contaminated soil and optimal rate of cattle manure for enhancing phytoremediation of PHC contaminated soil in the region. In the results, PHC contamination at concentration of 7002 mgkg<sup>-1</sup> detected as cultivated land from drilling points, was higher than the critical value of 5000mgkg soil (Sudan) and 5600mgkg (International). In sum, use of plant species namely H. Rufa, T. diversifolia and G. barbadense with 2 t ha<sup>-1</sup> of cattle-manure greatly improves bioremediation of PHC contaminated soils in the Sudd region of South Sudan. This study was funded by NORHED and was supervised by Dr Alice Amoding and Assoc. Prof John Baptist Tumuhairwe.



### **Degree of Doctor of Philosophy**

ALFONSE Leonard

### **The Role of Host Plants, Temperature and Natural Enemies in the Development, Survival and Reproduction of Edible Grasshopper *Ruspolia differens* (Orthoptera: Tettigoniidae)**

Mr. ALFONSE Leonard studied the edible long-horned grasshopper (*Ruspolia differens* Servile) which is a very important source of food and income in East Africa. The insect is currently obtained from seasonally swarming wild populations which are erratic and declining. His study focused on factors limiting artificial mass rearing of *R. differens*; these factors include the confusion over the identity of the grasshopper, paucity of information on the natural diets, diseases, and the optimal temperature requirements. He identified edible grasshopper in Uganda as *Ruspolia differens* (Serville), which is a polyphagous with grasses preference to other plants. The study determined temperatures ranging from 28°C to 32°C as optimum for artificial rearing of *R. differens*. He further investigated that fungi and bacteria isolated from wild-collected grasshoppers were threats to artificial rearing of the insect. *Glaurocara flava* was the only identified parasitoid of *R. differens*. He also found that the inclusion of naturally occurring host plants into artificial diets can improve the survival and reproduction of *R. differens*. The results from this study can contribute to the development of efficient mass rearing protocols of *R. differens*. This study was funded by the International Centre of Insect Physiology and Ecology (*icipe*) and German Academic Exchange Service (DAAD), and supervised by Prof. Samuel Kyamanywa from Makerere University, and Dr. James P. Egonyu and Dr. Sevgan Subramanian from International Centre of Insect Physiology and Ecology (*icipe*).



### **Degree of Doctor of Philosophy**

KALANZI Fred

### **Socio-technological factors influencing smallholder farmers' adaptation of agroforestry technologies in the eastern highlands of Uganda**

Mr. KALANZI Fred studied smallholder farmers' adaptation of agroforestry technologies in Uganda's Eastern highlands to establish the rationale for smallholder farmers' choices, use, and modification of agroforestry technologies. This followed a growing concern that despite the efforts to promote agroforestry technologies, smallholder farmers made contradictory choices and modified technologies in ways perceived by experts to compromise farm productivity and, consequently, food and income security. Results indicated that the technology's perceived value in addressing the livelihood options of the smallholder farmers was the most critical sociotechnological factor influencing their choices of agroforestry technologies. The study also found that smallholder farmers made several modifications and generated their own practices with anticipated positive outcomes that made the agroforestry technologies more applicable to their

unique contexts. The study suggests that while science may have a lot to offer to resource-poor smallholder farmers, their local knowledge and innovations should constitute building blocks in developing economically viable, environmentally compliant and socially acceptable agroforestry technologies. This study was supported by the German Academic Exchange Service (DAAD) through the World Agroforestry Centre (ICRAF) and NARO and supervised by Dr. Prossy Isubikalu, Dr. Florence Birungi Kyazze and Dr. Lawrence J.B. Orikiriza.



### **Degree of Doctor of Philosophy**

KALULE Wamala Stephen

***Farmer Learning Behaviours: A Case of the student-to-farmer university outreach of Gulu University in Uganda***

Mr. KALULE Wamala Stephen utilized a sample of 283 host farmers of the student-to-farmer outreach of Gulu University to examine the influence of psychosocial factors on farmer learning behaviour. The results show that the most important and positive facilitating condition for farmer learning behaviour was faculty supervision support to students. For the motivational factors, satisfaction of relatedness learning needs and formation of learning intentions were the positive and significant predictors farmer learning behaviour. This study funded by RUFORUM and was supervised by Dr. Haroon Sseguya, Assoc Prof. Duncan Ogeng and Dr. Gabriel Karubanga.



### **Conferment of the Degree of Doctor of Philosophy**

KYALLO Martina

***Identification and Characterization of Cassava Mosaic Begomovirus-like viruses Associated with Non Cassava Plants in Kenya***

Ms. KYALLO Martina study was on sustainable management of cassava mosaic disease by determining the role non-cassava hosts of Cassava Mosaic Disease (CMD) like viruses and their associated viruses play in the epidemiology of CMD in Kenya. The study identified M. Lutea as a potential alternative host for East African Cassava Mosaic Virus in Uganda revealing the adaptive potential for the virus and expanding our current knowledge of the host range of CMD in Kenya. This study was funded by Bill & Melinda Gates Foundation and was supervised by Dr. Mildred Ochwa Ssemakula and Dr. Robert A. Skilton.



### **Conferment of the Degree of Doctor of Philosophy**

LOGA Dorcas Elizabeth (Ms)

***Enhancing Group Sustainability and Innovativeness of Youth in Agriculture; a Comparative Study of Government***

**and Non-government Interventions in Mid-western Uganda.**

Ms. LOGA Dorcas Elizabeth studied how government and Non-Government agencies support youth groups in mid-western Uganda to engage in agriculture. The focus was on discovering the conceptual underpinnings that inform and shape the nature of support, enhancing the sustainability of youth groups, and youth innovativeness. The study revealed that government support is premised on the assumption that the youth lack capital, therefore focusing on capitalization through credit and free input provision; while the NGO support is premised on the assumption that youth lack entrepreneurial skills and extension services, and therefore focused on capacity building. The NGO-supported groups were more likely to be sustainable than the Government supported groups. Amidst numerous challenges, the groups post a higher score of innovativeness with an average innovation index of 0.536 reflecting a high potential for youth to revolutionize agriculture. Strengthening coordination to ensure cooperation and complementarity among interventions can enhance the innovativeness and sustainability of youth groups, and make agriculture more gainful. The study was funded by DAAD and Carnegie Corporation of the New York through RUFORUM; and supervised by Assoc. Professor Paul Kibwika and Dr. Florence Birungi Kyazze.



Conferment of the  
**Degree of Doctor of Philosophy**

MAWA Christopher  
*Effects of community-based forest management initiatives on conservation and rural livelihoods in mid-western Uganda*

Mr. MAWA Christopher examined the socio-ecological outcomes of community-based forest management initiatives in mid-western Uganda. The study found that positive social and ecological outcomes were simultaneously produced in areas where local community members were either actively co-managing forest resources with the state or were being supported by non-governmental organizations to formally manage and own them. Specifically, the initiatives enhanced community access to legally-sourced forest resources for both subsistence and cash. Additionally, households that had members belonging to conservation groups were more likely to benefit from alternative livelihood schemes promoted by state and non-state actors in the area. However, these alternative livelihood schemes mostly encouraged survival-led as opposed to accumulation-led livelihood diversification pathways. This study was funded by NORHED and was supervised by Prof. David Mwesigye Tumusiime and Assoc. Prof Fred Babweteera.



Conferment of the  
**Degree of Doctor of Philosophy**

MUKHONGO Wilhem Ruth

***Abbuscular Mycorrhizal Fungi for Enhanced Nutrient and Moisture Utilization in Sweet Potato Production***

Mr. MUKHONGO Wilhem Ruth investigated the composition and spore abundance of Abbuscular Mycorrhizal Fungi (AMF) in sweet potatoes producing regions in Uganda for local inoculum production. Further, the study sought to determine the efficacy of the native AMF and phosphorus on growth and yield of sweet potatoes. In the findings, the assessment of the composition and spore abundance of AMF in sweet potatoes zones yielded a similarity in the AMF communities with *Glomus* and *Acaulospora* species accounting for 38% and 20% respectively. This study was supervised by Assoc. Prof. John Baptist Tumuhairwe, Dr. Peter Ebanyat and Dr. Cargele Masso.



Conferment of the  
**Degree of Doctor of Philosophy**

MULINDE Catherine (Ms)

***Climate Adaptation and Crop Productivity in Coffee-Based Farming Systems of Uganda***

Ms. MULINDE Catherine focused on determining the most sustainable climate adaptation practices that are likely to increase current and future crop productivity, and mitigate climate vulnerabilities in Arabica and Robusta coffee-based farming systems of Uganda by 2040. She adopted qualitative, quantitative and modeling approaches in assessing climatic-crop suitability, adoption-drivers and effectiveness of major adaptation practices. Coffee and banana were revealed as more vulnerable to climate change than maize and beans in eastern, central and western Uganda; and that agroforestry, inorganic fertilizer, organic manure, mulch, trenches and soil bunds can potentially reduce crop yield losses especially if future climate becomes drier than wetter. The study recommends the promotion of these adaptation practices with an agile extension service considering the diverse adaptation needs of coffee-farmers rather than ‘one-size-fit-all’ adaptation strategies; identification of efficient on-farm water-draining technologies; and bioengineering of crop varieties adaptive to wetter-conditions across various altitudes. This study was supervised by Prof. Majaliwa Mwanjalolo and Dr. Revocatus Twinomuhangi, and funded by USAID.



Conferment of the  
**Degree of Doctor of Philosophy**

NAKITTO Aisha Musaazi Sebunya (Ms.)  
***Solanum anguivi Lam. fruits' nutritional quality and potential effect on type 2 diabetes mellitus.***

Ms. NAKITTO Aisha Musaazi Sebunya investigated the morphological characteristics, bioactive compound contents (BCC) and antioxidant activity (AA) of fourteen accessions of *Solanum anguivi* Lam. The impact of various ripeness stages and thermal treatments on the BCC and AA of *Solanum anguivi* Lam. fruits (SALF) was determined, where the unripe stage and boiling exhibited the highest AA. Further, the potential of dietary SALF to prevent and manage type 2 diabetes mellitus (T2DM)-like phenotypes was investigated using the fruit fly, *Drosophila melanogaster* (*D. melanogaster*) model organism. *D. melanogaster* has been previously shown to develop a T2DM-like phenotype upon high-sugar diet (HSD) intake. The study showed for the first time that dietary SALF lowers HSD-induced glucose levels in *D. melanogaster*, which was not mediated through an up-regulation of central genes (*Srl*, *dIlp3* and *dIlp6*) of the fly's energy metabolism. Simultaneously, dietary SALF increased the flies' survival, thus suggesting a protective effect of SALF against premature death associated with a T2DM-like phenotype. Dietary SALF may therefore help prevent and manage T2DM in humans. This study was funded by the DAAD and FTBIC and was supervised by Prof. John Muyonga, Prof. Anika Wagner and Assoc. Prof Yusuf Byaruhanga.



Conferment of the  
**Degree of Doctor of Philosophy**

NDAULA Sulaiman  
***Psychosocial factors in rural smallholder farmers' decision to accept orange-fleshed sweet potato in Uganda***

Mr. NDAULA Sulaiman studied the acceptance of orange-fleshed sweet potato (OFSP) within households that already grow White-fleshed sweet potato (WFSP). With vitamin A deficiency enduring as a major public health concern in many developing countries, OFSP continues to be promoted as a food-based alleviation strategy for the deficiency. This study sought to enhance understanding of the role of rural smallholder farmers' socio-cognitive contexts in OFSP acceptance in Uganda. The study revealed that farmers at the various stages of the OFSP cultivation process (under consideration, trial, or maintenance) differ in the belief sets they held about OFSP relative to the WFSP sweet potato varieties. Also, sustained OFSP cultivation was enhanced by social pressure, farmers' valuation of their capability to cultivate OFSP as compared to cultivating WFSP and health-related risk perceptions. Through compliance and conformity to peer pressure, farmers created a cycle of low cultivation intensity that led to limited access to vines, low appreciation of relative advantage of OFSP over WFSP and the attendant cultivation defections. This study points to a cardinal role for processes that create supportive social and cognitive environments for the acceptance of bio-fortified technologies such as the orange-fleshed sweet potato. This study was funded by DAAD and supervised by Dr. Frank Matsiko, Dr. Richard Miiro, and Dr. Haroon Sseguya.



Conferment of the  
**Degree of Doctor of Philosophy**

OBUA Tonny  
***Genetic Improvement of Nutritional Traits and Yield of Tropical Soybean in Uganda***

Mr. OBUA Tonny investigated the genetic diversity and population structure of 89 tropical soybean germplasm, and determined the variability of nutritional traits of 52 soybean core collections from diverse sources. He further conducted a genome-wide association study based on 92 soybean genotypes, as well as determination of environmental effect on protein content and yield in soybean. The results showed that the genetic diversity among the studied germplasm was low, and the phylogenetic tree and Principal Component Analysis grouped the 89 genotypes into three major clusters. The low genetic diversity could be attributed to the cleistogamous nature of soybean and the sample of genotypes used that were mainly released varieties and advanced breeding lines; that have been genetically fixed at all loci in regard to general consumer preferences after many cycles of selections. Low diversity in the studied germplasm pool is a reflection of genetic erosion of the existing germplasm pool, which calls for widening of the current germplasm base. The study further identified several soybean genotypes that protein and oil content above the reported averages. Total oil content varied significantly between origins with genotypes from Zimbabwe showing the highest mean of 20.13% while those from Taiwan had the lowest mean of 18.3%. The study was funded by Soybean Africa Limited, Makerere University Center for Soybean Improvement and Development, Biosciences Eastern and Central Africa - International Livestock Research Institute Hub; and was supervised by Prof. Phinehas Tukamuhabwa and Dr. Thomas L. Odong.



Conferment of the  
**Degree of Doctor of Philosophy**

OCHIENG Hannington  
**Biological assessment of River Aturukuku in Tororo, Uganda: a tropical river with potential environmental threats from its catchment**

Mr. OCHIENG Hannington undertook a biological assessment of River Aturukuku in order to contribute towards its conservation and sustainable utilisation by the riparian communities. His research compared the utility of two macroinvertebrate based Biological Monitoring Working Party indices, from England (temperate region) and Costa Rica (tropical region) for assessing water quality, and explored the assemblages of benthic macroinvertebrates and diatoms along River Aturukuku. His research showed that the two foreign biomonitoring indices could not separate sites based on pollution gradients, attributable to biogeographical differences in environmental conditions and pollution tolerances among macroinvertebrates. The diversity of benthic macroinvertebrates and diatoms in the river was low, with pollution-tolerant taxa dominating. The development of indigenous biotic index for Uganda and specific mitigation

measures for conservation of the entire river for sustainable utilisation is recommended. The study was funded by the National Geographic Society and was supervised by Prof. James Okot-Okumu and Dr. Robinson Odong.



Conferment of the  
**Degree of Doctor of Philosophy**

SYOFUNA Agatha (Ms)

***Prevalence and impact of stem canker diseases on Eucalyptus grandis and selected Hybrid clones in Uganda***

Ms. SYOFUNA Agatha studied the prevalence and impact of stem canker diseases on *Eucalyptus grandis* and selected Hybrid clones in Uganda. This was based on the background that there is a drive for re-afforestation and a high timber demand in the country, both of which are being solved by extensive plantation development. The study revealed that *Eucalyptus* plantations are threatened by *Botryosphaeria* and *Teratosphaeria* canker diseases throughout the Country mostly in the Central, Eastern and Albertine regions. Five species of *Botryosphaeriaceae* were identified based on multi-locus phylogenies (ITS and  $\beta$ -tubulin). Pathogenicity tests using species of *Botrosphaeriaceae* and *Teratosphaeria* revealed variation in susceptibility of *Eucalyptus grandis* and selected hybrid clones, suggesting that disease-tolerant *Eucalyptus* genotypes could be selected for disease management. Furthermore, an assessment of the anatomical, physical, and mechanical properties, revealed brittle failure and high shrinkage in wood from diseased trees, indicating that it is not suitable for some construction applications and should be used with caution. The study was funded by African Development Bank and DAAD, and supervised by Dr Grace Nakabonge and Prof. Abwoli Y. Banana.



Conferment of the  
**Degree of Doctor of Philosophy**

TURIAHIKAYO Willy

***Network governance dynamics that influence the generation and implementation of innovative activities within the Agricultural Innovation Platforms.***

Mr. TURIAHIKAYO Willy investigated the network governance dynamics that influence the generation and implementation of innovative activities within the Agricultural Innovation Platforms. The study findings showed that the level and structure of interactions have got a profound effect on generation and implementation of new ideas within the agricultural innovation platforms. However, owing to the informal nature of networks, this study revealed stringent

collective sanctions in the IPs can negatively impact the innovative activities. The study recommends increased actor interactions in terms of duration and frequency of interactions between actors within the platforms. This study was funded by the German Academic Exchange Service (DAAD), and supervised by Dr. Frank B. Matsiko, Dr. John J. Okiror, Dr. Richard F. Miiro and Prof. Jon Hanf.

## COLLEGE OF EDUCATION AND EXTERNAL STUDIES

The Principal College of Education and External Studies to present the following for the conferment of the



### **Degree of Doctor of Philosophy**

KABASIITA Jessica (Ms)

*Antecedents of Organizational Citizenship Behaviour among Academic Staff in Universities in Uganda*

Ms. KABASIITA Jessica investigated antecedents of organizational citizenship behaviour (OCB) among academic staff in universities in Uganda using Podsakoff et al.'s (2000) model of OCB. The model stipulates that OCB is a function of employee characteristics, task characteristics, organizational characteristics and leadership behaviours. The study employed a positivist paradigm and data was analysed using multiple linear regression techniques. The study findings revealed that; employee characteristics (job satisfaction & self-efficacy); task characteristics (skill variety & task significance); organizational characteristics (organizational structure, advisory support, & group cohesiveness) and leadership behaviours (transformational behaviours) were significant antecedents of OCB. Therefore, to raise the OCB levels of academic staff, university managers were recommended to improve the working conditions of their staff through innovative ways – including leading by example. The study was self-sponsored and supervised by Prof. F. E. K. Bakkabulindi and Dr. David Onen.



### Conferment of the **Degree of Doctor of Philosophy**

KALULE John

*Professional Development Programmes and Academic Staff Pedagogical Practices in CHUSS and COVAB at Makerere University*

Mr. KALULE John examined the extent to which Professional Development Programmes (PDP) influence academic staff pedagogical practices in CHUSS and COVAB at Makerere University. It employed an embedded research approach and a cross-sectional survey design. Respondents were sampled using stratified random and purposive sampling. Data were collected using a survey questionnaire, interview guides, and FGDs. Data were analysed using descriptive and inferential statistics. Findings revealed that PDP significantly influenced content knowledge, course organization, and knowledge of pedagogical approaches, while classroom management practices were not. Therefore, there is urgent need for DHR at Mak to organize continuous need-based PDP laying emphasis on practices that address content focus, active learning, coherence, and collective participation in a bid to improve on content knowledge, course organization and knowledge of pedagogical approaches of academic staff. The study was funded by Makerere University and supervised by Prof. Anthony Mugagga Muwagga and Dr. Gyaviira Musoke Genza.



Conferment of the  
**Degree of Doctor of Philosophy**

KIMBOWA Simon Patrick  
*Decision making styles of Heads of Department and work involvement of Academic staff in Makerere and Nkumba Universities.*

Mr. KIMBOWA Simon Patrick studied the effects of decision making styles of Heads of Department on the work involvement of Academic staff in Makerere and Nkumba Universities. Low work involvement of academic staff manifested in delay in marking students' examinations and release of results, low research and publication levels, low participation in university activities have been reported. Using a descriptive cross-sectional survey designs, this study analyzed the effects of Heads of Departments decision making styles on job involvement, career involvement and organizational commitment of academic staff. The findings showed that HOD's decision making styles had statistically significant impact on organisational commitment of academic staff but not on job and career involvement of academic staff whereas HOD's decision making styles had in the two universities. The study recommended revising and strengthening HOD's decision making styles policies to improve on organisational commitment of academic staff. The study was self-sponsored and was supervised by Dr. Livingstone Ddungu and Ass. Prof. Betty A. Ezati.



Conferment of the  
**Degree of Doctor of Philosophy**

KITAGAANA Zaidi  
*Dynamics of University-Industry Technology Transfer in Uganda: A Case Study of the Faculty of Engineering at Kyambogo University.*

Mr. KITAGAANA Zaidi investigated the Dynamics of University-Industry Technology Transfer (U-ITT) at Kyambogo University's Faculty of Engineering (KyU- FE). He explored the seemingly inappropriate mechanisms of Technology Transfer (TT), inappropriate institutional and industrial policies governing TT and organizational infrastructure, which appear to be out of tune with contemporary trends. The researcher used a descriptive single case study design anchored in the interpretivist paradigm. It was revealed that TT at KyU-FE is low, uncoordinated and at variance with set policies. Some envisaged institutional policies that enhance TT have not come to fruition hence failing to develop an inventory of TT activities at the university. The manpower at the University's TT offices lack bargaining strength and expertise to negotiate licensing contracts with industry. It was further found that most industries lack research and development departments to negotiate innovations with the University. The study concluded that there is need for strong national and institutional policy direction to govern U-ITT. The study was funded by Kyambogo University and supervised by Dr. Genza Gyaviira Musoke and Associate Professor Oonyu Joseph, RIP.



Conferment of the  
**Degree of Doctor of Philosophy**

KIRYOWA Mathias

***Financing of Church-founded secondary schools in Uganda and its implications for their school effectiveness: A case of Kampala Archdiocese, Mukono and Namirembe dioceses***

Mr. KIRYOWA Mathias investigated key sources of financing, financial resource allocation modalities, and alternative financing mechanisms as coping stratagems for church-founded secondary schools in Uganda. His study revealed that financial inadequacies emanating from pathetic funding models in most of the schools are accountable for the ineffectual instruction, unrestrained adversity, deficient staff and students' welfare, dilapidated infrastructure among other calamities. The study also discovered that innovative school leadership is paramount in spearheading a diversification strategy for alternative financing sources to break overdependence on government subvention grants and tuition, ensure institutional resourcefulness and ultimately, school effectiveness of church-founded secondary schools. This Study was funded by the Catholic Scholarship Program of Uganda, and supervised by Prof. Anthony Mugagga Muwagga and Dr. Wycliffe Scot Wafula.

Conferment of the  
**Degree of Doctor of Philosophy**



MUWANGUZI Eria

***Applicability of Smerek and Peterson's Assessment Model in analyzing Job Satisfaction among the Academic Staff at Makerere University***

Mr. MUWANGUZI Eria applied Smerek and Peterson's Assessment Model dimensions to analysis job satisfaction among the academic staff at Makerere University. The study specifically examined whether intrinsic, extrinsic factors, job characteristics and personal characteristics were significant predictors of job satisfaction among academic staff. Using a positivist paradigm and a descriptive cross-sectional survey research design, it was established that the intrinsic factor of recognition was the most significant predictor of job satisfaction. It was, thus, recommended that Makerere University should strengthen its recognition strategy to improve job satisfaction among the academic staff. The study was self-sponsored and supervised by Assoc. Prof. Betty Ezati and Prof. Christopher. B. Mugimu.

**WEDNESDAY 25<sup>th</sup> May 2022**

**COLLEGE OF BUSINESS AND MANAGEMENT SCIENCES**

The Principal College of Business and Management Science to present the following for the conferment of the



**Degree of Doctor of Philosophy**

ATUHAIRE Ruth (Ms)

*Disparities in Utilization of Maternal Health Care Services in Uganda*

Ms. ATUHAIRE Ruth investigated the disparities in utilization of maternal healthcare services in Uganda. The study focused on the interrelationships and regional differences in early antenatal care, facility based delivery and early postnatal care. Results show early antenatal care increases facility based delivery and early postnatal care, which highlights the important role of early antenatal care attendance in utilizing other key maternal health services. Regional critical disparities were mainly due to differences in maternal education, community health worker availability, wealth and exposure to media. The study recommended an effective system that enables care to evolve with the woman from first antenatal care visit (within the first trimester) until 48 hours after delivery. And, broad dissemination of maternal health and continuum of care information across all regions without distinction of demographic, social or economic conditions. This study was funded by Makerere University Business School and was supervised by Assoc Prof. Leonard. K. Atuhaire, Assoc Prof. Robert. Wamala and Dr. Elizabeth Nansubuga.



Conferment of the  
**Degree of Doctor of Philosophy**

ISABIRYE Alone

*Predictors of cervical cancer prevention practices among women in Uganda*

Mr. ISABIRYE Alone investigated the determinants of cervical cancer screening and HPV vaccination in Uganda. His study revealed that the majority (78%) of the girls had not been vaccinated. Higher likelihood of having ever been vaccinated was associated with girls who were schooling, living in households with 9 or fewer family members, and in the middle wealth status. Uptake of cervical cancer screening was also low (20%). The likelihood of cervical cancer screening was higher among women who; were in the rich wealth category, had attained secondary and post-secondary education, were married to farmers, and women who had received spousal screening-emotional -support. This study was funded by the German Academic Exchange Service (DAAD), and supervised by Assoc Prof. Betty Kwagala and Dr. Martin Mbonye.



Conferment of the  
**Degree of Doctor of Philosophy**

NANKINGA Olivia (Ms)  
*Child Care Arrangements and Wellbeing of Children of  
Employed Women in Central Uganda*

Ms. NANKINGA Olivia investigated the relationship between childcare arrangements for women in work and the wellbeing of children. The study focused on the physical, social and emotional domains of wellbeing. Results show better wellbeing outcomes among children looked after in formal childcare facilities. Wealth status, number of children under five years and religion were significantly associated with better wellbeing. Child caregiving work is one of the lowest paying employment and this has implications on childcare. The study recommended Government participation in provision of childcare to enhance female employment and fast tracking policy commitments on Early Childhood Care and Education. Synergies between Government and Private Entities need to be strengthened to ensure childcare provision. This study was funded by DAAD, and supervised by Assoc. Prof. Kwagala Betty and Assoc. Prof. Walakira Eddy J



Conferment of the  
**Degree of Doctor of Philosophy**

SENDAWULA Kasimu  
*Environmental sustainability practices of manufacturing  
small and medium enterprises in Uganda.*

Mr. SENDAWULA Kasimu examined the relationship between environmental knowledge, environmental commitment, regulatory compliance mechanisms and environmental sustainability practices of manufacturing SMEs in Uganda. The study revealed that there is a significant positive relationship between action knowledge, environmental commitment, regulatory compliance mechanisms and environmental sustainability practices. The study further established that regulatory compliance mechanisms partially mediate the association between action knowledge, environmental commitment and environmental sustainability practices. Waste management, eco-friendly packaging, energy efficiency and water conservation were confirmed as actions undertaken by the manufacturing SMEs to safeguard the environment. The study recommends the government to: create an SME environmental conservation fund to support the dissemination of action knowledge; partner with private and civil society organisations to annually evaluate, recognize, and award manufacturing SMEs that demonstrate commitment to protecting the environment; and establish a desk under NEMA to monitor the compliance of SMEs to environmental regulations. This study was funded by the management of Makerere University and supervised by Assoc. Professor Peter Turyakira, Assoc. Professor Vincent Bagire and Dr. Cathy I. Mbidde.



Conferment of the  
**Degree of Doctor of Philosophy**

Victoria Kakooza  
***Higher Education, Economic growth and Labour market in Uganda (1985-2017)***

Ms. KAKOOZA Victoria investigated the causal nexuses between Higher Education and Economic growth: as well as Higher Education and the Labour market in Uganda. In these times of increased automation and robotism; the future of higher education is dependent on the existence of the aforementioned nexuses. The study further partitioned the nexuses into gender, academic discipline and award level. Using econometric models, the study revealed that there exists a positive impact of higher education on: growth only in the long run; on labour productivity in both short and long run; while on Unemployment only in the short run. Statistical evidences of the impact of Male, Science and Undergraduates were found to be higher on the same variables than their counterparts the females, Arts, and Postgraduates. This study was funded by SIDA and Kyambogo University; and was supervised by Assoc Prof. Robert Wamala and Dr. James Wokadala.



Conferment of the  
**Degree of Doctor of Philosophy**

WALUGEMBE, Patrick (Mr)  
***Understanding Child Vulnerability in Rural Uganda: Determinants of Vulnerability Transition and Schooling***

Mr. WALUGEMBE Patrick examined the determinants of transition from vulnerability among vulnerable children in rural Uganda. This followed concerns that vulnerable children and households experienced different outcomes despite receiving the same package of development interventions. The study examined panel data collected between 2011 and 2014 on 17,484 vulnerable households and children from 35 districts of Uganda. The study found out that transition from vulnerability was dependent on the unique household and individual characteristics such as the region, presence/absence of parents, presence of chronic illnesses, and the household size. The study further found that the abuse of substances and alcohol among children, and eating fewer meals was a key determinant of education prospects in these vulnerable households. The study recommends that government and partner interventions should recognize the unique characteristics, needs, and diversity among different vulnerable populations when developing intervention packages. The study was self-sponsored with technical support from FHI360 and AVSI-Uganda; and was supervised by Assoc. Prof. Robert Wamala and Dr. Cyprian Misinde.

## **COLLEGE OF COMPUTING AND INFORMATION SCIENCES**

The Principal College of Computing and Information Sciences to present the following for the conferment of the



### **Degree of Doctor of Philosophy**

ANGOLE Okelo Richard

***Ontology-Based Model for Integrating Knowledge of Modern and Traditional Medicine***

Mr. ANGOLE Okelo Richard developed ontology model for integrating complex knowledge of African traditional medicine and modern medicine. complex African Society; African Traditional Medicine (ATM) is used in parallel to Modern medicine (MM). Various attempts have been made to bridge the gap between ATM and MM in order to harmonize treatment and to create an equal form of therapeutic cooperation but in vein due to lack of formal structure and complexity of the knowledge. each practitioner has their own terminologies and ways of providing healing services unlike Knowledge generated from Modern medicine which is structured. Therefore, ATM knowledge is isolated and mistrusted yet a lot of knowledge is generated in the practices which could be used across the whole health sector. In addition, modern medicine alone does not provide whole health needs of patients and the drugs are characterized by having undesired side effects, ATM provides holistic health intervention. ATM treats the body, the mind and the spirit. There is need to come up with a better technology to handle this complex structure of medical knowledge which the current artificial Intelligent (AI) systems used in e-health cannot manage. The model developed bush the backend of AI to handle complexity in medical knowledge. The work was supervised by Assoc Prof. Gilbert Maiga and Dr George Wiiliam Okori.



### **Degree of Doctor of Philosophy**

ATUHURIIRE Marriette Katarahweire (Ms)

***Form-based Data Security in Mobile Health Data Collection Systems in Low-Resource Settings***

Ms. ATUHURIIRE Marriette Katarahweire investigated security challenges in mobile health data collection systems deployed in low-resource settings. It was found out that data in MHDCS are diverse and have varying security requirements depending on their sensitivity levels. Particular emphasis was on incorporating security controls early in the development process through electronic forms to be used for data collection, and according to sensitivity levels of the data. A

data sensitivity model was developed that takes into consideration both static and dynamic parameters for data sensitivity and categorizes data into different sensitivity levels using parameters defined by the stakeholders. Use of the model enables developers to design and build mobile health data collection systems that adhere to the security goals of confidentiality, integrity and availability. This is expected to reduce the potential threats and increase the confidence and adoption of eHealth services. The study was funded by NORAD and was supervised by Assoc Prof Engineer Bainomugisha and Assoc Prof Khalid Azim Mughal.



Conferment of the  
**Degree of Doctor of Philosophy**

KAMUKAMA Ismail  
*A model for spatial variability of typhoid disease incidences in Uganda*

Mr. KAMUKAMA Ismail integrated clinical, environmental and demographic data to explore spatial variability of typhoid disease incidences in Uganda for the period 2012 to 2017 using data science method. The study first explored spatial-temporal trends and distribution patterns of typhoid disease incidences at both regional and national levels in order to gain initial disease burden insights in the population. The study then revealed highest incidences and clustering of the disease in the central region, followed by Western, Eastern and Northern regions throughout the study period. Geographically Weighted Regression model revealed that poor handwashing practice was mainly influencing disease occurrences in Northwestern, Northern and Northeastern parts of the country. Excessive rainfall was most responsible for disease occurrences in the Eastern, Central and Southern parts of the country. Poor drainage was mainly influencing disease occurrences in the Western, Central and Southern parts of the country. This knowledge is essential for planners and decision-makers to: efficiently plan, enforce preventive measures and make targeted interventions, which eventually reduce disease surveillance costs. The study was funded by SIDA and supervised by Assoc Prof. Gilbert Maiga, Dr. Denis Ssebuggwawo and Dr. Peter Nabende.



Conferment of the  
**Degree of Doctor of Philosophy**

KAMULEGEYA Grace Bugembe  
*Characterization of Practices and Measurements in Software Start-ups in an Emerging Ecosystem*

Mr. KAMULEGEYA Grace Bugembe, through case studies investigated and characterized software hub operations and software start-up practices, and growth-tracking metrics in the emerging East Africa start-up ecosystem. His study characterized the operations of hubs in East Africa as not much had been established about how hubs nurture software start-ups. He also established that software start-ups indeed measured but adopted and adapted some practices and metrics used in start-ups in developed ecosystems. He designed and developed a progress measurement dashboard that start-ups can use to monitor their key growth metrics. He also iteratively derived 10 dimensions that can be used to influence and distinguish metrics used in

software start-ups and mature software companies. The compiled hub practices can be used by existing and new hubs to benchmark their operations against the successful hubs in the East African region. The growth metrics will enable software start-ups to track the important aspects of their businesses in the different stages as they grow. This study was funded by SIDA and Supervised by Prof Regina Hebig and Dr. Raymond Mugwanya.



Conferment of the  
**Degree of Doctor of Philosophy**

MBABAZI Ruth Mutebi

***Designing Persuasive Technologies For Societal Benefit: A Persuasive Technology For Fighting Electricity Theft In Kampala, Uganda***

Ms. MBABAZI Ruth Mutebi studied persuasive technology design frameworks, with the aim of developing a technology that could aid in reducing electricity theft in Kampala Uganda. After conducting a survey, Ruth found that electricity consumers are not willing to fight electricity theft, despite its' negative impact on them. She was modified Fogg's Eight Step Process using design theory resulting into the Design Theory-Fogg's Eight Step Process (DT-FESP). This was used to develop a persuasive mobile application to increase willingness to participate in fighting electricity theft called, "Faayo" Evaluation of "Faayo" showed that it had potential to persuade electricity consumers. The research demonstrated the feasibility of persuasive technologies and recommended that Umeme includes them in their electricity theft mitigation strategies. The study was funded by SIDA and was supervised by Dr Julianne Sansa-Otim and Prof. Sebitosi Ben.



Conferment of the  
**Degree of Doctor of Philosophy**

NAKASI Rose (Ms)

***Automated Diagnosis of Malaria in Thick Blood Smear Films: Deep Neural Network Approach***

Ms. NAKASI Rose investigated how deep learning algorithms can be used for the automated detection of malaria and its parasitemia determination in microscopic thick blood smear images. Using an experimental design, the study revealed that by exploiting recent technological advances in 3D printing and deep learning to produce effective hardware and software respectively, a functioning point-of-care diagnosis system for malaria on this principle, capable of running on multiple microscopes and phone combinations can be produced. A malaria parasite detection accuracy of over 98% as compared to conventional machine learning methods was achieved. This study contributes to the practical improved malaria diagnosis especially in highly endemic, but low-resource settings in the Sub-Saharan Africa, where there are few trained lab experts. Further, the diagnostic solutions developed in this study could be adapted for the general microscopy disease diagnosis. The study was funded by SIDA, and was supervised by Dr. Ernest Mwebaze and Dr. Aminah Zawedde.



Conferment of the  
**Degree of Doctor of Philosophy**

NAMUJUZI Sylvia (Ms)  
***Management of Agriculture Archives in National  
Agricultural Research Institutes in Uganda***

Ms. NAMUJUZI Sylvia investigated gaps in the management of agriculture archives in National Agricultural Research Institutes (NARIs) particularly, documentation, maintenance and access. Using case study and descriptive designs, the study established that various agriculture archives existed in NARIs according to their specialties, but were largely in paper format including: Maps, Datasets, Institutional correspondences, Photographs and Government Acts and legislations, among others. However, most of these archival materials were not processed, classified, accessioned and catalogued leading to poor documentation, maintenance and access. Two major outputs of this study were: an evaluated Agriculture Archives Management Framework for closing the gaps and an Agriculture Archives Monitoring and Evaluation Tool for continuous process improvements in agriculture archives management. Further, the framework and the evaluation tool could be adopted by other Agricultural Institutions for the general management of agriculture archives in their possession. The study was funded by Carnegie and was supervised by Prof. Robert Ikoja-Odongo and Dr. Mary Basaasa Muhenda.



Conferment of the  
**Degree of Doctor of Philosophy**

SANYA Rahman  
***Predicting Infectious Disease Density in Urban Settings  
using Convolutional Neural Networks***

Mr. SANYA Rahman's thesis explored applications of Convolutional Neural Networks (CNN) for modeling and analyzing spatial dynamics of human infectious diseases in low-income urban settings. This work integrates multiple and diverse data sources including housing density signals (used as proxy for indoor overcrowding) extracted from remote sensing satellite imagery, and socio-economic well-being, as predictors for disease density. Using Tuberculosis (TB) disease data from Uganda, the study found that CNN were promising for detecting and quantifying patterns in infectious disease density. This work is the first of its kind in exploring possibilities afforded by advances in deep learning algorithms and remote sensing data to enhance understanding of infectious disease processes. By doing so, it has expanded the frontiers of methods available for digital epidemiology. The study was funded by the African Development Bank and supervised by Dr. Ernest Mwebaze and Assoc Prof Gilbert Maiga.

## COLLEGE OF VETERINARY MEDICINE, ANIMAL RESOURCES AND BIO-SECURITY

The Principal College of Veterinary Medicine, Animal Resources and Bio-security to present the following for the conferment of the



### **Degree of Doctor of Philosophy**

BALINANDI Karabyo Stephen

***Ticks and tick-borne diseases of cattle in selected districts of Uganda: zoonotic potential and public health implications***

Dr. BALINANDI Karabyo Stephen investigated the diversity of ticks infesting cattle, and their importance for public health attention in Uganda. This is because ticks are now increasingly recognized as a major factor in the epidemiology of various zoonotic diseases. The field work was done in the districts of Kasese, Hoima, Gulu, Soroti and Moroto, between September and November 2017. In total, 4,362 ticks were collected from 500 cattle, from which 15 tick species were found. Prior to this study, the economically important tick species, *Rhipicephalus microplus*, that spreads fatal babesiosis in cattle, was only found in Serere district. With the work herein published, *Rhipicephalus microplus* has been found also in Gulu and Soroti districts. This study also identified several viruses that were circulating in Ugandan cattle, including 4 potential novel viruses. In addition, it was revealed from this study that Crimean-Congo hemorrhagic fever, one of the most important tickborne infections for humans around the world, was widely spread in Uganda. Overall, this study highlighted the need for increased surveillance of tickborne diseases in Uganda, and for government policy to focus on control of ticks as an important vector of human diseases. The study was funded by the Swedish Research Council and supervised by Assoc Prof Lawrence Mugisha, Assoc Prof Maja Malmberg and Dr. Julius J. Lutwama.



### Conferment of the **Degree of Doctor of Philosophy**

NAMAYANJA Monica

***Trypanosoma brucei brucei - host interactions associated with biological barrier traversal***

Ms. NAMAYANJA Monica studied how *Trypanosoma brucei brucei*, interacts with host cells when crossing different biological barriers. First, a mouse model was employed to seek whether crossing of the blood-brain barrier commences at the same time for different strains. Further, *in*

*vitro* models, confocal and scanning electron microscopy were used to determine the crossing mechanism. Subsequently, a protein previously suspected to be involved in blood brain barrier traversal was localized. Findings showed that different strains cross the blood brain barrier at different time points, that crossing of different biological barriers is different, and modification of the host plasma membrane was observed. The expressed protein localized in the mitochondria ruling out its involvement in blood brain barrier traversal. This thesis, for first time demonstrated the modification of the host plasma membrane by *T. b. brucei* and pointed to factors that can be exploited for the development of new interventions against African Trypanosomiasis. The study was funded by National Key Basic Research Program of China, the Organization of Women in Science for the Developing World; and supervised by Prof George W. Lubega and Assoc Prof. Enock Matovu.



Conferment of the  
**Degree of Doctor of Philosophy**

SEBULIME Perigrine  
***Phytochemical Composition of Capsicum Frutescens And Its Effect On Growth, Carcass Yield And Organoleptic Characteristics Of Indigenous And Broiler Chickens***

Mr. SEBULIME Perigrine investigated phytochemical composition and dietary inclusion levels of *Capsicum frutescens* powder with positive effects on growth, carcass yield and organoleptic characteristics of indigenous chickens and broilers. A completely randomized design was used to conduct *Capsicum frutescens* feed inclusion levels experiments for broiler and indigenous chicken. It was found that *C. frutescens* powder had alkaloids, terpenoids, coumarins, saponins, anthracenosides and reducing compounds. The total flavonoids, phenols, alkaloids and saponins were 83.33 mgRE/100g, 587.75 mg GAE/100g, 6.8% and 23.5%, respectively. The antioxidant activity scores based on 1,1-diphenyl-2-picryl-hydrazyl (DPPH) radical scavenging activity at concentrations 100, 200, 400, and 500 ug/mL were 17.1, 20.8, 29.8, and 33.3%, respectively. It was shown that it was possible to improve carcass yield when *C. frutescens* was included at a level of 2.2% in the diets of sunflower seed cake, introduced to birds aged six months for the duration of thirty-seven days. However, there was no evidence to suggest that *Capsicum frutescens* could interfere with the most desirable organoleptic characteristics of the carcasses. Notably, the findings of this study offer guidance for integrating *Capsicum frutescens* in intensive production systems within Uganda to produce safer chicken meat with reduced risks to health of consumers.

**THURSDAY 26<sup>th</sup> May 2022**

**MAKERERE UNIVERSITY BUSINESS SCHOOL**

The Principal Makerere University Business School to present the following for the conferment of the



**Degree of Doctor of Philosophy**

MUKISA K Ambrose

***Role of blood lead on the anemia status of malaria infected children.***

Mr. MUKISA K. Ambrose investigated the effect of concomitant exposure to both lead pollution and malaria infection on the anemia status of Uganda's urban children. The findings show that having both blood lead and malaria infection exacerbates anemia pathogenesis. Their interaction during anemia development is strong and significant. Further, blood lead complicates the management of anemia disease and this could account for the high anemia prevalence of 52% among Uganda's children. The study concludes that blood Lead levels is a key confounding factor of anemia pathogenesis especially in children infected with malaria and therefore, its assessment should always be considered during anemia management. The study recommends more detailed study should be carried out involving other anemia confounding factors to properly understand the interactive effects of lead exposure and Plasmodium malaria infection over a long period of time. The study was funded by DAAD and supervised by Dr Joseph Kyambadde and Dr. Denis M. Kasozi



Conferment of the  
**Degree of Doctor of Philosophy**

KUSEMERERWA Christopher

***Self-employment among the Youth in Uganda***

Mr. KUSEMERERWA Christopher investigated Self-employment among the Youth in Uganda using a multi-theoretical approach. Specifically, he focused on youth who have finished University and Tertiary education. Using a cross-sectional research design, he established that social capital, learning behaviour, initiative conduct and business self-efficacy do matter in self-employment among the youth. He further established that business self-efficacy plays a partial mediating role in the relationship between social capital, learning behaviour, and initiative conduct in self-employment among the youth. He recommends that the youth should exhibit initiative behaviour in their business operations by not waiting to be told to exploit available business opportunities and continue operating even amidst challenges. From the policy perspective, government should reinforce curriculum change from the existing one which is divorced from practical needs of the

society to practice learning to enable youth become more employable. He further recommends government to put in place fiscal measures specifically targeting the youth to boost their business confidence. This study was funded by Makerere University Business School and was supervised by Prof. John C. Munene, Prof. Waswa Baluywa and Prof. Laura Orobia.

**FRIDAY 27<sup>th</sup> May 2022**

**COLLEGE OF ENGINEERING, DESIGN, ART AND TECHNOLOGY**

The Principal College of Engineering, Design, Art and Technology to present the following for the conferment of the



**Degree of Doctor of Philosophy**

LWANYAGA Joseph Ddumba

*Application of process technologies for improved salt production from Lake Katwe, Uganda*

Eng. LWANYAGA Joseph Ddumba designed a process that selectively extracts salt from the brines of Lake Katwe coupled with a techno-economic analysis to foster commercial exploitation of the Salt Lake. Through thermodynamic modelling, the study revealed that the mineral precipitation sequence mainly started with sulfate followed by chlorides and lastly carbonates with halite as the most abundant mineral. His study further revealed that the salt pan should be as shallow as practically possible with an optimal depth of 0.1 m. Results from the techno-economic analysis showed that halite of purity >99% was produced after the flotation of burkeite and trona. Additionally, soda ash and sodium sulfate were produced by a combination of flotation, carbonation and calcination techniques. The unit production cost of halite was 0.2629 and 0.4724 \$/kg with a NPV of \$2,447,853 and -12,085,796 of the solar salt and mechanical evaporation processes respectively. As a result, the solar salt extraction process proved feasible from both engineering and economic standpoints and thus can be scaled up to a pilot scale using conventional industrial equipment. The study was funded by SIDA and was supervised by Prof. John Baptist Kirabira and Dr. Hillary Kasedde.



Conferment of the  
**Degree of Doctor of Philosophy**

MAKABAYI Brian

*Ground Deformation Modelling Based On Causal Factors in Landslide-Prone Areas. A Case Study of Bududa District, Uganda.*

Mr. MAKABAYI Brian undertook a study to model ground deformation in Bududa landslide-prone area. He developed a model for predicting ground deformation hence the occurrence of landslides resulting from a number of casual factors such as rainfall, soil, slope and infiltration. He tested the model using two space technologies namely Global Navigation Satellite System (GNSS) and Interferometric Synthetic Aperture Radar (InSAR) techniques. This model can be used by stakeholders such as the Office of the Prime Minister (OPM), the Ministry of Disaster Preparedness and Refugees and local authorities to predict ground deformation as a precursor to

landslides. This study was funded by the German Academic Exchange Service (DAAD) and supervised by Prof Moses Musinguzi and Dr John Richard Otukei.



Conferment of the  
**Degree of Doctor of Philosophy**

MAZIMWE Allan  
*Pattern Driven Data interoperability in situation awareness systems. A case of the disaster management community in Uganda*

Mr. MAZIMWE Allan studied how to manage semantic barriers to data sharing and integration in disaster situation awareness systems for early warning purposes. Such barriers arise from the fact that stakeholders manage information using different policies and interfaces while at the same time describing data using different vocabularies and conceptualisations. As a solution, the study adopts the use of patterns (best practices) as building blocks for interoperable architectures that address semantic barriers in line with Findable, Accessible, Interoperable and Reusable (FAIR) principles. The study examines the extent to which vocabularies and related best practices for organising data in the disaster risk community are FAIR. A pattern-driven architecture for organising disaster risk knowledge is developed based on existing data-sharing challenges in the disaster community. As a proof of concept, the drought risk-informed response prototype was developed to illustrate the use patterns as building blocks for managing data interoperability in disaster situation awareness systems. The study was funded by SIDA and supervised by Prof. Imed Hammouda and Assoc. Prof Anthony Gidudu.



Conferment of the  
**Degree of Doctor of Philosophy**

NAKISANZE Sarah  
*Social Sustainability and the Ugandan Haute Couture Visual Aesthetic: Articulating The Contemporary Value of Past Tradition*

Ms. NAKISANZE Sarah interrogated haute couture artefacts which exhibit Uganda's traditional cultural heritage fused with aspects of contemporary dress to produce haute couture as a visual language representing social sustainability. Sarah was intrigued by the stride backwards to move forward amidst modern fashion aesthetic innovations, and has established and articulated the value of the traditional aesthetic in the present. The traditional aesthetic is an engender of sustainable development; and haute couture shaped by the aesthetic is an inclusive knowledge dissemination platform. In addition, the past traditions are an agential tool that facilitate agents' negotiation of contemporary global stage dynamics. The study recommends that the traditional aesthetic is developed beyond traditional culture heritage, but as an aesthetic with contemporary socio-economic sustainability value towards the development of the creative industry and safe environments. The study was jointly funded by the researcher and Makerere University, and supervised by Dr. Nakazibwe Venny and Dr. Ssendendo May.



Conferment of the  
**Degree of Doctor of Philosophy**

WADEMBERE M. Ismail  
*A Localized Geometrical Alignment Technique for updating  
Geo-Spatial Databases*

Mr. WADEMBERE Mugumbu Ismail developed a Localized Geometrical Alignment Technique (LGAT) for Updating Geo-spatial databases. The innovative technique uses differences between corresponding objects so that only the changed parts are updated than copying entire objects between geodatabases. This helps to minimize geometrical errors emanating from openings or overlaps of objects. This technique will facilitate efficient data update within the Uganda national spatial data infrastructures. It will also exploit the potential presented by the Internet computing paradigm in terms of data sharing, utilization of Volunteered Geographic Information, and lead to more use of spatial information in decision-making. This study was funded by Kyambogo University, Makerere University, and Nuffic Project of Dutch Ministry of Development Cooperation; and was supervised by Prof. Patrick Ogao and Prof. Moses Musinguzi.

## **COLLEGE OF HUMANITIES AND SOCIAL SCIENCES**

The Principal College of Humanities and Social Sciences to present the following for the conferment of the



### **Degree of Doctor of Philosophy**

AMPAIRE Anne (Ms)

***Career Stereotypes and Aspiration as Predictors of Students' Independence in Career Choice at Education Transitional Levels in Uganda***

Ms. AMPAIRE Anne examined the extent to which career stereotypes and aspirations predict students' career choice at education transitional levels in Uganda. This was motivated by the continued challenges that impact on students' independence in career choice and the extent to which career decisions are based on the available facts. This has led to students taking up careers that are not in line with their interests, value system, and skills, thereby compromising the outcome expectations. Overall, the results revealed that reliance on personal independence and career choice facts, is decreased by the prevailing career stereotypes, across the education transitional levels. This has resulted into an increase in the number of students who pursue careers that are inconsistent with their career aspirations and interests, and there is need for measures aimed at addressing those prevailing career stereotypes. The study was co-funded by myself and Makerere University and was supervised by Dr. Mayanja Kajumba and Prof. Anthony M. Mugagga.



### **Conferment of the Degree of Doctor of Philosophy**

ANTWIWAA Stella (Ms)

***The Representation of Women in Selected Plays of Euripides and Selected Ghanaian Playwrights***

Ms. ANTWIWAA Stella employed feminist and postcolonial theories to interrogate the representation of women in selected classical Euripidean plays and selected Ghanaian playwrights to examine the 'universalist' view that the Classics are models for others to learn from. The research questions the hegemonic elevation of the Classical/Western values to examine African experiences. The study reveals that in terms of gender representations, the Classical Greek, through Euripides' writings, does not provide examples for the Akan (Ghanaian/African) societies. The study recommends that African scholars need to adopt Afrocentric epistemology to examine African experiences in order to shift and balance the centres of knowledge production and circulation. Africa's classics in history, art, myths, folktales and indigenous knowledge need to be foregrounded in scholarship to address the pedestal placement of the Western Classics as a yardstick to evaluate African artefacts. Granted the Classics continue to be valuable, scholars need to interrogate them when applied to different cultural experiences. This critical and comparative study challenges the ideology of the superiority of Western Classics over other cultures. This study

was funded by Gerda Henkel Stiftung Foundation, and supervised by Prof. Dominica Dipio and Dr Danson Kahyana.



Conferment of the  
**Degree of Doctor of Philosophy**

ARINAITWE Perpetua (Mrs)  
***Kiswahili at Crossroads: Cultural Politics and Language Policy in Uganda.***

Ms. ARINAITWE Perpetua studied historical narratives of different language policies and factors that impacted Kiswahili growth across the different historical periods; the pre-colonial period (1840-1894); the colonial period (1894-1962); and the post-colonial period (1962-2019). A blend of three approaches to language policy and planning (LPP); the Historical-structural model, the Neo-classical Model and Language Management Theory (LMT). A narrative technique enabled the collection of both qualitative and quantitative data. Findings revealed that Kiswahili growth has been dependent on numerous language policies stretching from the pre, during and post-colonial epochs. Constant shift in cultural and political leadership meant that whoever held power determined the language policies that favoured their leadership ideology. The study was funded by the GERDA HENKEL STIFFTUNG and was supervised by Dr Saudah Namyalo and Dr Gumoshabe Gilbert.



Conferment of the  
**Degree of Doctor of Philosophy**

ASIIMWE Stedia (Ms)  
***Female survivors' Experiences of Intimate Partner Violence (IPV) and access to justice in Uganda***

Ms. ASIIMWE Stedia investigated female survivors' experiences of intimate partner violence (IPV) and access to justice in Uganda, with a focus on relationships involving male police officers. The study was carried out in Jinja police barracks in Eastern Uganda. Methodologically, qualitative approach was employed, using case study design. Findings indicate that female survivors of IPV experienced physical, sexual, economic and psychological violence. Factors that triggered IPV against women in police families included: shared accommodation, poorly managed transfers and daily deployments, alcoholism, low salaries, refusing women to work outside the barracks and work related stress. Access to justice by female survivors of IPV was constrained by alien referral pathways to justice, abusers' possession of a weapon, long procedures, laxity by authority to punish fellow officers, sexual harassment, women's lack of information about their rights and Government's failure to decentralize some services. The study argues that the arm of the law is too short to reach civilian female survivors of IPV, because the abusers are at the same time the vehicles through which justice is supposed to be delivered. The study recommends that police management should construct more houses for officers, include a module on Gender based violence in police training syllabus and use multi-professional teams to handle IPV cases. The study

was funded by Makerere-Sweden Bilateral Research Program, and was supervised by Dr. Victoria Flavia Namuggala and Dr. Ruth Nsibirano.



Conferment of the  
**Degree of Doctor of Philosophy**

ATWAGALA Donnah  
*A Comparative Analysis of Land ownership and Land conflicts in post-conflict areas of Luwero and Amuru Districts, Uganda: A Gender Perspective*

Ms. ATWAGALA Donnah analysed the effects of landownership and land conflicts on gender perspectives in post-conflict areas of Luwero and Amuru Districts in Uganda. The findings show that the nature and causes of land conflicts have evolved, transforming from being local to becoming international. Actors and conflicts have become more sophisticated and complex to identify and analyse, respectively. The study recommends adopting the right-based, gender and conflict-sensitive land acquisition, ownership and management framework that will ensure equitable land acquisition, access and use by all stakeholders. This study was supervised by Dr. Paddy Musana and Assoc. Prof. Consolata Kabonesa.



Conferment of the  
**Degree of Doctor of Philosophy**

BALIKOOWA Richard  
*A Sociocultural Exploration of Children's Experiences and Perspectives on Gender-based Violence in Primary Schools in Busoga Sub-region, Uganda*

Mr. BALIKOOWA Richard explored the experiences and perspectives of primary school children regarding gender-based violence in and around schools and its impact on their schooling; in Uganda's Busoga sub-region. Using a sociocultural approach, Balikoowa adopted a multimethod design through which he involved 450 male and female school children from 10 to 14 years in participatory visual activities; including draw-and-talk, child-friendly focus group conversations, in-depth interviews; as well as the eclectic administration of a survey tool. Children acknowledged experiencing and/or witnessing gender-based violence in and around their schools. They also disclosed that gender-biased factors associated with school setup and gender-based violence immensely negatively affected their motivation to engage in school activities. However, children's greatest nervousness and related impact on their schooling was attributed to the unresponsiveness and unempathetic attitude by those around them. The study recommended that stakeholders in children's schooling should allow them reveal their challenges and also pay concerted attention to them as key participants in their development and schooling. The study was funded by the Andrew W. Mellon and was supervised by Assoc. Prof. Julius Fred Kikooma and Dr. David Onen.



Conferment of the  
**Degree of Doctor of Philosophy**

FEDEO Ignas  
*Myth and Mythmaking in the Narratives about Mwalimu Julius Nyerere among the Banyakyusa*

Mr. FEDEO Ignas studied the recreation of Nyerere's personal life and political career in Banyakyusa myths. The study offers an alternative understanding of Nyerere's life and history as perceived by local people. Using oral history interviews and content analysis, Banyakyusa myths which carry their culture, voices, beliefs, and perceptions of Nyerere were recorded. The myths were interpreted based on Banyakyusa traditional beliefs and their life experiences. The findings revealed that Banyakyusa believe that Nyerere was endowed with immense supernatural and mystical powers which helped him to implement his presidential duties successfully and protect himself and the Tanzanian people. The study established the Banyakyusa belief that Nyerere's mystical powers greatly account for the prominence of his ideas and the reverence accorded to him in Tanzania, Africa and the world at large. The study will promote preservation of Banyakyusa and other Africans oral materials especially myths which carry beliefs and perceptions of local people. This study was funded by Gerda-Henkel Stiftung Foundation and supervised by Prof Abasi Kiyimba and Dr. Benge Okot.

Conferment of the  
**Degree of Doctor of Philosophy**

KATURAMU Alex  
*Land, social Change and the lives of nomadic pastoralists in Western Uganda since 1950*

Mr. KATURAMU Alex examined the historical proliferation of nomadic pastoralists focusing on the issues of land and social change since 1950. In the results, seasonal movements culminated into land conflicts among pastoralists and farmers. The land conflicts were exacerbated by intensity of population in the cattle corridor. The study shows that pastoralists remain one of the sectors that significantly contribute to Uganda's Gross Domestic Product, hence deserving resource investments to improve the livelihoods of herders. This study was supervised by Dr. Simon Peter Rutabajuuka and Dr. Charlotte Karungu Mafumbo.



Conferment of the  
**Degree of Doctor of Philosophy**

KIGEMBE Elmerck  
**Challenges of Strategic Plan Implementation in the North Western Diocese: Evangelical Lutheran Church in Tanzania**

Rev. KIGEMBE Elmerck investigated the challenges that limited strategic plan implementation in the North Western Diocese of the Evangelical Lutheran church in Tanzania. The study identified Improper resource allocation, limited knowledge of implementers, un-conducive working conditions, lack of clear targets and changes in Government policies as negative actors in strategic plan implementation. For the church to effectively implement its strategic plan objectives so as to deliver God’s Mission, the study recommended strategic mobilization, monitoring and allocation of resources; integration of training in the strategic plan implementation processes; enhancement of working conditions; integration of clear targets in action plans and regular review of strategic plan instruments to accommodate changes in the government policy. The study was funded by the United Evangelical Mission (UEM) and supervised by Dr. Patrick Mangeni and Dr. Veneranda Mbabazi.



Conferment of the  
**Degree of Doctor of Philosophy**

KIRIGGWAJJO Anatole  
***The Tonology of Lunyala Nouns, Noun Phrases and Verbs***

Mr. KIRIGGWAJJO Anatole investigated the tonology of Lunyala one of Uganda’s minority languages mainly spoken in the district of Kayunga. He argues that although the tone system of Bantu languages has attracted a lot of attention in the last decade, minority languages have been neglected making such languages endangered. His study found out that Lunyala has a privative tone system with the High tone marked underlying while both the underlying and surface tones are borne by moras in a one-to-one correspondence. Further the tone distribution over the moras is determined by tonal processes for example; High and Low tone spreading, Obligatory contour Principle and Tonal polarity among others. He underscores the usefulness of the study in compiling Lunyala online-talking dictionaries and developing teaching and learning materials in Lunyala. This study was funded by Volkswagen Foundation and was supervised by Dr. Saudah Namyalo.



Conferment of the  
**Degree of Doctor of Philosophy**

IMOKOLA John Baptist  
***Television Programming Regulation: Examining the Policy Implementation of Local Content Quotas in Uganda***

Mr. IMOKOLA John Baptist examined the implementation of television local content quotas policy in Uganda. Five years after television local content quotas were implemented in 2014, no known comprehensive assessment had been done on uptake by television stations, and how the is understood by the different stakeholders. The study analyzed the perspectives of different stakeholders, opportunities from the local content quotas and the challenges affecting implementation. Using key informant interviews, focus group discussions and document analysis, the study found that Uganda Communications Commission, the television stations, the local content producers and the audience had reacted differently towards the policy. Implementation has seen increased production, acquisition, adaptation and airing of Ugandan content for television. Although there are opportunities created by the policy, achievement of these are bedeviled structural, conceptual, economic and political challenges affecting effective implementation. The study proposed a new definition of local content, and recommends a consultative process in the formulation and implementation of broadcast policies. This study was funded by Andrew Mellon CHUSS Fellowship and supervised by Prof. Goretti Linda Nassanga and Dr. Brian Semujju.



Conferment of the  
**Degree of Doctor of Philosophy**

KYOMUHENDO Marjorie Niyitegeka (Ms)  
*Family Planning Communication in Uganda: An Interrogation of Media Reporting, Communication Campaigns and Audience Perspectives*

Ms. KYOMUHENDO Marjorie Niyitegeka's study was motivated by the constant high awareness and low use of contraceptives by most women and men of reproductive age in Uganda. She thus examined the framing of family planning information in selected media stories and health communication campaigns. She also explored how audience members targeted by the campaigns interpreted family planning information. Her study found deficiencies in family planning communication occasioned by shallow media reporting and information transmission approaches that disregarded the audience's information needs and contextual factors. She recommends that the Ministry of Health and partners implement a harmonised communication strategy that is audience-centred and responsive to the emerging information needs and socio-ecological contexts of particular audience segments. She further urges Uganda's media to practise more enterprise and interpretive journalism in reporting family planning to amplify its significance to the public. The study was co-funded by CARTA and Makerere University, and was supervised by Prof. Goretti L. Nassanga and Prof. Anne R. Katahoire.



Conferment of the  
**Degree of Doctor of Philosophy**

LUGWIRI Okombo Patrick  
*A citizen Sociolinguistics Appraisal of Kiswahili as a Tool for Social Integration in the East African Community*

Mr. LUGWIRI Okombo Patrick employed the Citizen Sociolinguistics model to explore language-based decisions about Kiswahili among ordinary citizens in the East African Community, specifically, in Busia and Namanga border towns. Lugwiri's study was motivated by Article 137(2) of the EAC Treaty (1999) which provides for the promotion of Kiswahili as a lingua franca of the Community. Using ethnographic methods, the study examined the patterns and extent of the use of Kiswahili, the nature of Kiswahili used, and citizens perceptions and attitudes to Kiswahili. The study found that Kiswahili is construed, constructed and appropriated differently by different citizens in different domains and spaces, and therefore, a highly varied language. While Kiswahili has the potential of a common language of communication and a tool for social integration in the EAC, issues of varieties and labels, contact and conflict between varieties, status and prestige, perceptions and attitudes, national and social identity, and linguistic power struggles impact negatively on this potential. The study recommended a shift in approach to Kiswahili in the EAC from the 'top-down' policies to 'bottom-up' or practice-based policies that take into account participation of ordinary citizens as makers and shapers of language policies. The study was funded by Gerda Henkel Fellowship and supervised by Dr Merit Kabugo and Dr Florence Bayiga.



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MUDONDO Constance (Ms)  
***Land Conflicts and Livelihoods of People Utilising Namatala Wetland in Eastern Uganda***

Ms. MUDONDO Constance examined how land conflicts shape livelihoods of people. Using Namatala Wetland in Eastern Uganda as a case, she examined the conflict dimensions and drivers, land use, and conflict management mechanisms. She found that increasing demand for moist farm land shape conflict dimensions leading to cleavage formation based on class, ethnicity, and location. The emergent quests for territorial control and inequality result in violence, which hinders optimal use of land and diminishes wetland users' capitals. Although formal conflict management strategies have been tried, they were largely protectionist and divisive, reinforcing feelings of relative deprivation and latent hostilities. Consequently, the wetland users have resorted to informal coping mechanisms like social-networks that act as collective labour, financial safety valves and buffers against attacks. She argues that alleviating the effects of land conflicts requires shifting from structural models to locally bred conflict management systems. The study was funded by SIDA and supervised by Dr. Robert Kabumbuli and Dr. Dauda Waiswa Batega.



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MUGENYI Jonathan  
***Singing Politics: Popular Music, Popular Politics and Contingencies of Protest in NRM's Uganda***

Mr. MUGENYI Jonathan examined the deployment of musical expression in the practice of state politics under Uganda's National Resistance Movement. On the one hand, he investigated the direct and implied ways by which the NRM deploys musical expression as a tool of political mobilisation and legitimization while on the other hand, he examined ways by which the Ugandan society uses musical expression to create alternatives ways of engaging with NRM politics. Expanding the Foucauldian theory of power, Mugenyi argues that musical expression is a conduit of state power that percolates into society and it is the same conduit that returns to the state to challenge its power as contingencies of protest. This study was funded under Makerere Institute of Social Research's Interdisciplinary MPhil/PhD and was supervised by Prof. Mahmood Mamdani.



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MWANIKA Kassim  
*Commercial Sugarcane Farming and Rural Youth Livelihoods in Eastern Uganda*

Mr. MWANIKA Kassim examined the implications of commercial farming on a vulnerable population. Focusing on sugarcane farming and youth livelihoods in Eastern Uganda, he found that sugarcane farming has a suboptimal impact on youth livelihoods in Busoga sub-region. Due to limited requisite resources, the youth constitute the bulk of sugarcane labour force and their benefits from the industry are limited to wage earnings. He argues that commercial sugarcane farming is an enclave for wealthy groups, and that youth are incorporated into circuits of capital accumulation where they are exploited by employers. The process is exacerbated by lack of labour regulations and sugarcane price volatility, which undermine the trickle-down effect of sugarcane farming on youth livelihoods. Enhancing outcomes from sugarcane farming requires addressing structural traps embedded in capitalist large-scale farming. The study was funded by SIDA and supervised by Assoc. Prof. Andrew Ellias State, Prof. Atekyereza Peter and Assoc. Prof. Torun Österberg.



Conferment of the  
**Degree of Doctor of Philosophy**

NAKABO Seruga Robinah (Ms)  
*Followership and Women's Empowerment for Sustainable Development: A Case of the Women in the National Association of Women's Organisations in Uganda*

Ms. NAKABO Seruga Robinah investigated followership and women's empowerment for sustainable development, taking the case of the women in NAWOU. After in-depth interviews, findings showed that followership was generally a taken for granted concept. Respondents perceived followership as a cooperative venture, retrospection on past experiences, as a detour, seeking to stabilise or destabilise the status quo, identifying preferred values, and mentorship. Most voices reiterated that generally, many women exhibited perpetual and unconscious followership tendencies even when other alternatives were available; with fear as the main causal condition.

However, women’s followership of NAWOU was found to be pragmatic and conscious with the implication of possible empowerment; intervened by education, family ties, and financial situations. The conclusion was, depending on personal characteristics, perception of empowerment and the typology of followership adopted, women could gain empowerment for sustainable development. The recommendation is that NAWOU, the government, academic institutions, and similar organizations reconsider the concept of followership and its implications on empowerment. The study was supervised by Assoc Prof. Godfrey Assimwe, and Dr. Robert S. Esiruku



Conferment of the  
**Degree of Doctor of Philosophy**

NAKALYOWA Deborah (Ms)  
***Intimate Partner Violence and Masculinities: Experiences of Baganda male “survivors” in Masaka District, Uganda***

Ms. NAKALYOWA Deborah examined, through a qualitative methodology, the lived experiences of men who were subjected to Intimate Partner Violence (IPV) by their female intimate partners in heterosexual relationships, including forms/types in which the IPV manifested, and how it affected the masculine identities of the male victims. Findings revealed that they were subjected to psychological/emotional violence, in addition to physical aggression and sexual abuse in the contexts of Intimate Terrorism, Situational Couple Violence and Mutual Violent Control. While the importance of maintaining an appropriate sense of masculinity underpinned their narratives, the male victims described feeling shame and embarrassment for not having met the dominant cultural expectations surrounding masculinity, consequently affecting their emotional and physical well-being. However, the majority of men were hesitant to seek help after victimization, for fear of ridicule, emasculation and being cast as the perpetrators. Therefore, there is need for more research and advocacy to enhance recognition and public awareness about the plight of male victims, review of laws/policies aimed at combating IPV in intimate relationships to be more gender-inclusive, as well as establish victim service support sources for all IPV victims, regardless of gender. The study was funded by SIDA and supervised by Dr. Evelyn Lutwama-Rukundo and Assoc. Prof. Consolata Kabonesa



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**Degree of Doctor of Philosophy**

NANSAMBA Joyce (Ms)  
***Why They Stay: A socio-cultural Reconstruction of Academics’ Retention in Uganda’s Public Universities.***

Ms. NANSAMBA Joyce explains why Academics stay working in Uganda’s Public Universities despite unappealing working conditions. Recognizing that staff retention is not exclusively about institutional frameworks and individually situated explanations, the study underscores the role of historical, social and cultural contexts in explaining retention. A narrative analysis of the academics’ stories revealed that the meaning academics attach to their professional identity, the social relations from engaged scholarship and the otherness from external prestige explain their retention. The study was a departure from conventional thinking that attractive pay and benefits,

satisfactory terms of service, good working conditions among others explain retention. It was a novel step to studying retention as a social construction from the perspective of Academics' own experiences. The study was funded by Makerere University and supervised by Assoc Prof. Julius Kikooma and Assoc Prof. Umar Kakumba



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NIRINGIYIMANA Julius  
*Oil Politics and Land Conflicts in the Albertine Region,  
Uganda*

Mr. NIRINGIYIMANA Julius investigated how oil politics was influencing the changing nature of land conflicts in the Albertine region of Uganda. The study discovered that though the Ugandan government had been engaging in protracted negotiations with multinational oil corporations in an effort to protect the national interests, the process instead got plagued by land conflicts and dispossession of citizens from their land. It established that the interests of the actors conflicted and led to the politicization of oil governance. Consequently, the government was made to adjust its position to accommodate the interests of multinational oil corporations while other opportunistic interests, such as land speculators also took advantage. These actions made the affected persons to lose their land rights which invoked and intensified land conflicts in form of Polanyi's 'countermovement' and adversely affected people's livelihoods. The study concluded that where neoliberal capitalism interfaces with an oil-producing developing country, citizens face dispossession of land and other rights, and where there are pre-existing land conflicts, the politicisation of oil intensifies them and produces new ones. The study recommends that the Ugandan state should re-assert its interests and obligations to protect people's land rights and make multinational oil corporations to adhere to internationally established benchmarks such as fair compensation. This study was funded by SIDA and supervised by Prof Muhumuza William and Prof Murindwa Rutanga.



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TUNANUKYE Nicholas  
*A History of Migrancy, Nativism, and Citizenship in Uganda,  
1894-1995: A case of South and Western Uganda*

Mr. TUNANUKYE Nicholas examined the relationship between migrations, identity formations and citizenship in Uganda, 1894-1995 using migration experiences of Bakiga and Banyankole into Buganda, and Bakiga into Bunyoro. Using historical research methods which included analysis of documents, oral narratives and archival sources, the study established that, whereas migration had taken place in the region of pre-Uganda, colonial rule encouraged unprecedented internal migration in Uganda. The new socio-economic order brought about by the colonial state opened the way for free movement in the protectorate across ethnic boundaries. There were two main reasons for this accelerated migration: migrant labour and search for land. The migration of

Banyankole and Bakiga from southwestern region of Uganda to Buganda in the 1930s, 1940s into 1960s was largely in response to the former, while the migration of the Bakiga into Bunyoro and Toro regions during the 1950s and 1960s was in response to latter. The study also established that there were complex interactions between the migrating and receiving communities. One major complexity lay in the attitude of nativism, expressed in subtle ways. Nativism gave rise to two kinds of citizenship consciousness: the Local Citizenship bestowed by membership to an ancestral community inhabiting a particular region and National Citizenship bestowed by the statutes of the Ugandan state. The study was funded by The Andrew W. Mellon Foundation and was supervised by Dr. Simon Peter Rutabajuuka and Dr. Deo Nzarwa Katono.



Conferment of the  
**Degree of Doctor of Philosophy**

WAMAMELA Nixon

*A critique of Constitutional making and amendment in  
Uganda with Reference to the 1967 &1995 Constitution*

Mr. WAMAMELA Nixon conducted an ethical critique of constitutional making and amendment in Uganda with specific reference to the 1967 and 1995 constitutions. The study established that the constitutional processes were seemingly legitimate, yet, self-interest tendencies overrode common interest, hence, the resultant controversies such as lack of consensus among members of parliament, questionable declaration of state of emergency, controversial consultations, resultant scuffles and violent scenes in parliament. It was also established that ideals of constitutional democracy and legislative ethics were lacking. To mitigate the above challenges, an ethical framework for constitutional making and amendment processes should be put into account. Such a framework should include referenda, benchmarking and a national consensus on ethical principles, declaration of conflict of interest by the incumbents and other possible beneficiaries. These are possible through creation of ethics review committee within parliament. The study was funded by Andrew W. Mellon Foundation and supervised by Prof. Archangel Rukooko Byaruhanga and Dr. Paul Matthias Shimiya.



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