Proceedings of the Eighth International Conference on Role of Diaspora for Sustainable Homeland

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Nepalese Students’ Association
New Mexico State University
Las Cruces, NM 88003
Proceedings of
8th International Conference on
Role of Diaspora for Sustainable Homeland

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New Mexico State University
Las Cruces, NM 88003

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Uttar Kumar Shrestha, President of NeSA
Gopal Tamang

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Editor’s Note

NeSA, Nepalese Students’ Association, is one of the most active student organizations in the New Mexico State University (NMSU) since its establishment in 2006. Every organization with unique culture can make a substantial contribution to the society. With this view, NeSA has been organizing many programs regarding multiculturalism within and outside New Mexico State University. Continuing this tradition, this is an attempt of NeSA to organize the eighth annual International conference entitled “Role of Diaspora for Sustainable Homeland.” The focus of this conference was on all subjects like science, engineering, technology, women studies, education, economics, homeland, culture and many more. The International conference is one of the major events where students and researchers not only present the issues regarding the development of Nepal but also bring scholars from different departments of NMSU as well as different universities together in one platform to present their academic scholarly research and their views on current issues relevant to the theme of the conference.

This year our Keynote speaker, Dr. Drona Prakash Rasali, is an active leader of Nepali Diaspora in North America from Canada, Vancouver, who informed us about the role of diaspora to
sustain the country’s entity. Dr. Rajan Ghimire, Dr. Weizhong Tian, Dr. Andrew Pardo and Dr. Parra were the guest speakers who provided valuable knowledge on their expertise. This year we had presenters from Nepal, Canada, United States, Mexico, China, India, and Rwanda making this conference assemble of International scholars. The presenters were from various institutes such as New Mexico State University, Southern New Hampshire University, New Mexico Tech, University of Texas of El Paso, Eastern New Mexico University, University of Regina shared their research papers.

To my knowledge, almost all students of NMSU participated and brought their families to the conference. During the conference, everyone gathered that helped us build brotherhood or sisterhood. Recently, Nepal was hit by catastrophic earthquake. This year’s International Conference focused on some of these topics, and presenters presented their views on how diaspora can contribute to Nepal and make it sustainable in different ways such as education, agriculture and biodiversity

Thank you

Roshani Rajbanshi, Ph. D.
Editor and Academic Director,
Nepalese Students’ Association
New Mexico State University
President’s Message

Nepalese Students’ Association (NeSA) was established in 2006 and is registered as a Cultural organization with the purpose of introducing and promoting Nepalese culture into the international communities, assisting Nepalese students’ adjustment to the University, and participating in various activities sponsored and organized by New Mexico State University (NMSU). NeSA is a very active student organization in New Mexico State University that has been continuously organizing conferences like this by inviting speakers from different backgrounds since 2009.

The initial intention of the conference was to provide a platform where NMSU students can share their knowledge and research with faculty and students. Over the years, NeSA has drawn much attention from both inside NMSU and other universities. We focus on bringing diversity through knowledge transfer. Last year, Nepal was hit by a catastrophic Earthquake which not only resulted in loss of more than 9,000 people, damage of many infrastructures, injuries of more than 23,000 people but also worsen the economy even more which has been a main concern for many years due to political instability and lack of good governance. NeSA Eighth International
Conference entitled “Role of Diaspora for Sustainable Homeland” focuses on these issues and seeks views and ideas about how Nepalese Diaspora can contribute to their homeland for making it more sustainable in different ways. Also, NeSA has been trying to connect and share cultural values with the Las Cruces local community. This year, NeSA has also approached local community for their participation in the conference by developing a new link in its website so that they can access and gain some idea about what’s going on at NMSU and the community. We believe in bringing positive changes by sharing knowledge. Over a decade, NeSA has gone beyond the scope and dimension in many ways. On this special 10th year of its establishment, it is my pleasure to thank all the pioneers who had initiated this novel idea of organizing an annual conference at New Mexico State University.

Finally, I would like to thank Ms. Roshani Rajbanshi, Academic Coordinator of NeSA Eighth International Conference and its committee members, all Nepalese Community for their support and help; ASNMSU, Dean of College of Education – Dr. Donald Pope-Davis, Provost of International Border Program – Dr. Cornell Menking, Dean of Graduate School – Dr. Loui Reyes, Arts and Sciences Council, NMSU Provost Office – Dr. Dan Howard, Department Head of Chemistry & Biochemistry – Dr. William Quintana, NeSA Alumni, and All Time Tax – Texas for providing funds to run the conference smoothly.

Thank you.

Uttar Kumar Shrestha,
President, Nepalese Students’ Association (NeSA)
Doctoral Candidate, Department of Chemistry & Biochemistry
New Mexico State University, Las Cruces, NM 88003-8001
Brief introduction to keynote and guest speakers

Keynote speaker

Dr. Drona Prakash Rasali, BVSc, PGT (Patho), MS, PhD, FACE, University of Regina

Dr. Drona Rasali is an active leader of Nepali Diaspora in North America. He was elected as Deputy Regional Coordinator for Americas in the Non-Resident Nepali Association’s International Coordination Council (NRNA-ICC) for 2009-2011. He served as an Advisor of NRNA-ICC for 2011-2013. Currently, he is a member of Disciplinary Committee of NRNA-ICC. He has been an advisor of the NRN-Canada since 2008. Also, he serves his local Nepali community organization Nepal Cultural Society of BC (NCSBC) in Vancouver, Canada from its Board of Directors. He is one of the original key proponents of Open University of Nepal (OUN) initiative, a flagship project of NRNA-ICC.

Professionally, Dr. Rasali is the Director, Population Health Surveillance & Epidemiology in the Provincial Health Services Authority of British Columbia province of Canada since 2012. Prior to assuming the current position, he worked as Provincial Chronic Disease Epidemiologist with the Ministry of Health in Saskatchewan province for over 7 years. Dr. Rasali holds a position of Adjunct Professor in the Faculty of Kinesiology and Health Studies at the University of Regina since 2009. In spring 2014, he was awarded the professional designation of a Fellow of
American College of Epidemiology (FACE), a promotion from the status of a member of the College which he held since 2006. Originally, he comes from a professional background as a Doctor of Veterinary Medicine working with the Government of Nepal as veterinary officer to senior scientist over 20 years. He also had brief stints in working as a Trainee Pathologist in Western Australian Government Animal Health Laboratories in 1985 and as a Research Fellow at the Aberdeen University, Scotland, UK in 1996.

Dr. Rasali has received his post-secondary education and professional training, studying in several countries including India, Philippines, Thailand, Australia, Malaysia, UK and Canada. He conducted his doctoral research in genetics using animal population models and research in epidemiology whilst in the University of Manitoba in Canada, where he earned his PhD degree. He has published widely in several scientific fields of veterinary science, animal genetics and physiology, and agro-biological sciences through to his mid-career. Lately for the past 10 years, he is active in the fields of epidemiology, population and public health, providing evidence for public health policy planning. He is currently in the Editorial Advisory Board of an international peer reviewed scientific journal - Small Ruminant Research (Elsevier), while he is also a reviewer in two other international scientific journals related to health sciences, Annals of Epidemiology (Elsevier) and Asia-Pacific Journal of Public Health (Sage).

On the social front as a part of his life-long commitment to give back to his community, he founded an international network called nepaldalitinfo that stands up for social justice in Nepal, and he has been moderating the network since 2003.
Dr. Rajan Ghimire, Plant and Environmental Sciences, NMSU

Dr. Rajan Ghimire is an Assistant Professor and Cropping Systems Specialist at the New Mexico State University Agricultural Science Center at Clovis, NM. He grew up in a farm family in Gorkha, Nepal. Dr. Ghimire received his school education from Mahalaxmi Secondary School, Laxmi Bazar, Gorkha, and undergraduate in agriculture (2004) and Master’s degree in soil science (2006) from the Tribhuvan University, Nepal. During 2006-2009, Rajan worked at the Tribhuvan University, Institute of Agriculture and Animal Sciences, Rampur, Chitwan as a Lecturer of Soil Science. In 2009, he moved to Laramie, WY and continued his graduate education at University of Wyoming. Rajan received his Ph.D. in Soil Science (2013) from the University of Wyoming and earned a postdoctoral research experience from the Oregon State University. Rajan studied soil organic matter and soil microbial community dynamics during his doctoral study and focused on improving soil health and agricultural sustainability in dry land cropping systems in the Pacific Northwest during his postdoctoral research. Dr. Ghimire is interested in soil organic matter and nutrient dynamics, soil microbial community responses, greenhouse gas emissions in diverse cropping systems and soil management practices to improve the sustainability of agriculture in current and future climate.
Dr. Weizhong Tian, Department of Mathematical Sciences, ENMU

Dr. Weizhong Tian originates from China. He obtained the Bachelor’s degree in Information and Computing Sciences form Northwest Agriculture and Forestry University, China, and master’s degree in computational mathematics from Northwest University, China. In 2010, he moved to New Mexico State University and got his master and Ph. D degree in mathematical statistics. After that he got a job as an assistant professor in statistics at Eastern New Mexico University. He was invited to attend several international conferences, such as 2015 Joint Statistical Meetings, International Conference of the Thailand Econometric Society, International Workshop on Applied Mathematics and Statistics. His research interests are skew distribution and its applications, linear mixture model, high dimensional data analysis, tail and intermediate tail dependence and cumulative residual entropy. He was the member of American Mathematical Society, Mathematical Association of America, American Statistical Association, and Institute of Mathematical Statistics. He also was a reviewer of the journal of statistics Application and Probability.
Dr. Andrew Pardo, Department of Chemistry, UTEP.

Dr. Andrew Pardo graduated from the University of Texas at El Paso (UTEP) in 2006 with a Bachelors of Science degree. He was then accepted into the graduate program at UTEP in January 2007 and worked with Dr. Luis E. Martinez. After a year and a half Andrew joined Dr. Katja Michael’s lab where he first worked with synthesizing carbohydrates based vaccine for Chaga’s disease. Having his heart set on method development he jumped projects to work on developing a photoreactive method for acylating peptides with thiophenol at the C-terminus. He is currently working alongside with Dr. Juan Noveron at UTEP in developing nanoparticles embedded in hydrogels for water purification.
Dr. Julia Parra, Curriculum and Instruction, NMSU

Dr. Julia Parra is an assistant professor at New Mexico State University, College of Education, Department of Curriculum and Instruction, Learning Design & Technology Program. She earned her degree of Doctor in Education in Learning Technologies from Pepperdine University’s School of Education and Psychology. Dr. Parra has an overarching research focus on learning design, technology and innovation and has conducted and published research in the areas of faculty/teacher professional development with technology and in technology-based environments; online/blended/HyFlex teaching and learning; digital democracy, culturally-responsive teaching and learning; the relationships between pedagogy, content and technology; personal learning networks, and MOOCs. Due to the integrative nature of learning design and technology, she has many opportunities for collaboration and service in a leadership role. Most recently, she was asked to serve as a founding board member of the New Mexico Distance Learning Association (NewMexicoDLA) and as co-chair of the conference committee, organized and facilitated the virtually delivered, 1st Annual NewMexicoDLA Conference 2015. Dr. Parra is always up for a challenge or adventure, evidenced recently by her foray into experiential STEM from both the learner perspective and designer of learning perspective. For more about Julia, see her website at http://juliaparra.com/.
Schedule of Events

8:00 am - 9:00 am  Registration (Preparation and Proceeding to the Conference Hall).

Opening session (9:00 am—9:45 am) (Opening Ceremony)

- Welcome by Academic Director Roshani Rajbanshi.
- Slide Show of Effect of Earthquake by Ujjwal Panthi.
- Welcome by NeSA president Uttar Kumar Shrestha.
- Welcome speech by NeSA Advisor, Dr. Ram N. Acharya.
- Speech by Graduate school Dean, Dr. Loui Reyes.
- Speech by Provost of International Border Program, Dr. Cornell Menking.
- Letter of Best wishes from Dr. Ambika P. Adhikari, Arizona State University, Dr. William Quintana, Department Head of Chemistry & Biochemistry and Dr. Daniel Howard, Executive Vice President and Provost.

Session I (9:45 am -12:00 pm) (Morning Session) Announcer - Prasamsa T. Dhakal

9:45-10:00  Sudip Gaire, Department of Entomology, Plant Pathology & Weed Science, New Mexico State University.

10:00-10:15  Roma Mukhopadhyay, Department of Chemistry & Biochemistry, New Mexico State University.
A Redox Sensing Function for the Heme Nitric Oxide / Oxygen Binding Protein (H-NOX) from *Vibrio cholerae* that is Independent of Heme Binding.

Business Education and the Performance of CEO.

10:30-10:45  Leslie Toledo, Department of Biology, New Mexico State University.
Introduction to Marine Invertebrate Embryology Model Systems.

10:45-11:00  Rajendra Gautam, Department of Chemistry and Chemical Engineering, New Mexico Tech.
Visualization of Lipid-Linked Prodrug in Drug Delivery Vehicles.

11:00-11:15  Margarita Ruiz Guerrero, Curriculum and Instruction, New Mexico State University.
11:15-11:30  **Durga Neupane**, Department of Chemistry & Biochemistry, New Mexico State University.
Differential expression of Zinc responsive genes in *Paracoccus denitrificans*.

11:30-11:45  **Armando Altamirando**, Curriculum and Instruction, New Mexico State University.
Online Democracy: Join the Future of Democracy.

11:45-12:00  **Arjun Aryal**, Department of Physics, University of Texas of El Paso.

**Session II (12:00 pm -1:00 pm) (Lunch Break/Posters)**

**Govinda KC**, Department of Physics, University of Texas at El Paso.
Regioselectivity of H$_2$O@C$_{60}$ fullerenes.

**Rishi Sapkota**, Department of Chemistry and Biochemistry, New Mexico State University.
Fluorescent triazoloborolopyridinium dyes for cross metathesis labeling.

**Ravi Shah**, Electrical Engineering, New Mexico State University
Glance of Nepal through my lens.

**Doleshwar Niroula**, Department of Chemistry, New Mexico Institute of Mining and Technology
Total Synthesis and Determination of Absolute Stereochemistry of Hortonone C: An Anti-cancer Agent.

**Gayatri Gautam**, Department of Chemistry, New Mexico Institute of Mining and Technology.
Preparation and Acoustic Focusing of Lipid Bilayer Coated Microspheres.

**Session III (1:00 pm -5:00 pm) (Afternoon Session - Oral Presentation, Keynote and Guest Speaker)**

1:00-1:30  **Guest Speaker - Dr. Julia Parra**, Curriculum and Instruction, New Mexico State University.
Adventure in Learning Design, Technology and Innovation.

1:30-1:45  **Gaspard Mucundanyi**, Curriculum and Instruction, New Mexico State University.
Educational learning game: New opportunity for youth to learn.
1:45-2:00  **Shuv Raj Rana Bhat**, Rhetoric and Composition, University of Texas at El Paso.  
Rhetoric of Empire in Kincaid’s *Among Flowers: a Walk in the Himalaya.*

2:00-2:30  **Guest Speaker - Dr. Andrew Pardo**, Department of Chemistry, University of Texas El Paso.  
Synthesis of peptide phenyl thioesters using a solid support with a photoreactive nitroindoline linker.

2:30-3:00  **Guest Speaker - Dr. Weizhong Tian**, Department of Mathematical Science, Eastern New Mexico University.  

3:00-3:15  Break

3:15-3:25  **Speech by Dr. David Rutledge**, Curriculum and Instruction, New Mexico State University.

3:25-3:55  **Guest Speaker - Dr. Rajan Ghimire**, Plant and Environmental Science, New Mexico State University.  

3:55-4:55  **Keynote Speaker - Dr. Drona Prakash Rasali**, Faculty of Kinesiology and Health Studies, University of Regina, SK, Canada.  
**Role of Diaspora for Sustainable Homeland: Towards Making the Differences in Societal Well-being of Nepal.**

4:55-5:00  Thank you note from Dr. Gyanu Laminchhane, Associate Professor, John Hopkins Medical School and Kesab Paudel, President of NRN.

5:00  Closing

**Note:** All abstracts for presentation and posters are posted in our website. Please visit [web.nmsu.edu/~nesa](http://web.nmsu.edu/~nesa) for more information.
Extended Abstracts on Oral Presentation


1Sudip Gaire, 1Alvaro Romero, 2Mary O’Connell and 2F. Omar Holguin
1Department of Entomology, Plant Pathology & Weed Science
2Department of Plant and Environmental Sciences
New Mexico State University, Las Cruces, NM

The Turkestan cockroach is a peridomestic pest that has become an important invasive species throughout the Southwestern United States. Our study aims to evaluate ecofriendly management strategies for this pest. We evaluated the toxicity and repellency of six botanical-derived components; thymol, trans-cinnamaldehyde, eugenol, geraniol, methyl eugenol and p-cymene against late instar nymphs of Turkestan cockroaches. Essential oils were chosen for further studies based on the presence of effective compounds in those oils. Topical application and fumigant exposures were carried out; thymol was the most toxic compound to nymphs with a LD$_{50}$ of 0.34 mg/cockroach and LC$_{50}$ of 27.6 mg/L air. Nymphal responses to 1% dry residues of essential oil components were recorded for 20 minutes with an EthoVision video-tracking setup. Nymphs spent significantly less time (35.8%) in zones treated with thymol; the other five compounds did not have a detectable effect on nymph behavior.

GC-MS analysis demonstrated the primary components were 8.02% thymol in red thyme oil, 2.26% geraniol in java citronella oil and 10.60% eugenol in clove bud oil. The topical application with oils confirmed that red thyme oil (LD$_{50}$: 1.60 mg/cockroach) and clove bud oil (LD$_{50}$: 1.65 mg/cockroach) were more toxic than java citronella oil (LD$_{50}$: 7.87 mg/cockroach). The red thyme oil has a higher fumigant effect than other oils with a LC$_{50}$ value of 160.55 mg/L.
Behavioral assays confirmed that all these oils are repellents for nymphs, which might be due to synergistic effects of different compounds present in those oils.

Keywords: Turkestan cockroach, ecofriendly management, essential oils, toxicity, repellency

A Redox Sensing Function for the Heme Nitric Oxide / Oxygen Binding Protein (H-NOX) from Vibrio cholerae that is Independent of Heme Binding. Roma Mukhopadhyay.

Department of Chemistry & Biochemistry, New Mexico State University

Nitric oxide (NO) is an important signaling molecule in biology. In mammals, a domain of soluble guanylate cyclase (sGC) senses NO via its binding to a heme cofactor, which stimulates guanylate cyclase activity from the catalytic domain. In bacteria, homologues to the sGC heme domain known as Heme Nitric Oxide/ Oxygen (H-NOX) binding proteins function in NO signaling by influencing the activity of downstream signaling proteins in a NO-dependent manner. H-NOX mediated NO signaling is involved in bacterial communal behaviors such as quorum sensing and biofilm formation/dispersal. We have expressed and purified Vibrio cholerae H-NOX in both heme-bound (holo) and unbound (apo) forms and tested their ability to inhibit autophosphorylation of the associated signaling histidine kinase (HisKa). Intriguingly, inhibition of HisKa autophosphorylation was virtually identical for the holo and apo proteins. Further, exposure of either form to NO under reducing conditions had no affect on inhibition. However, exposure of apo H-NOX to oxidizing agents such as hypochloric acid, hydrogen peroxide or high concentrations of aerobic NO strongly activated inhibition of HisKa autophosphorylation. This effect was reversible upon addition of DTT, suggesting the involvement of Cys oxidation as a regulatory mechanism for H-NOX signaling. Consistent with this is the observation that the degree of H-NOX Cys disulfide formation as determined spectroscopically and by mass spectrometry correlates well with the potency of HisKa inhibition. Therefore, we propose a model whereby Vc H-NOX may act as a cellular redox sensor through the reversible oxidation of its 4 Cys residues, and that this activity is completely independent of heme binding. Three of the four Cys residues present in Vc H-NOX are highly conserved,
suggesting that this sensing mechanism may be not exclusive to this species. In any case, this work contributes to a broader understanding of the signaling mechanisms available to the H-NOX family, with possible implications for bacterial virulence and persistence.

**Business Education and the Performance of CEO. Sangken Kirant.**

*International Business, Southern New Hampshire University.*

CEO is the one who makes most of the vital decisions about the company’s future. In other words, CEO is the person who has power to lead the company toward success or failure. That is why Education is perceived to be one of the crucial requirements for selecting CEO. Individual educational background is a fundamental requirement for selecting a CEO in a company, and we comprehend that Business Degree like MBA is highly desirable. However, we do not have enough evidence to show whether Business Degree is the requirement to be a CEO.

**Keywords:** CEO, Education, performance, correlation, ANOVA

**Introduction to Marine Invertebrate Embryology Model Systems. Leslie Toledo.**

*Department of Biology, New Mexico State University.*

Embryology is the area of biology that studies the formation of gametes, fertilization and development of embryos until hatching or birth. Embryology has become an interdisciplinary field involved not only in Developmental and Cell Biology but also in Evolution and Ecology. In order to understand and study the development of embryos it is important to have easy accessibility and large amount of them. Marine invertebrates usually have external fertilization,
releasing thousands of gametes. These embryos are exposed to many predators; thus, their development must be fast, completed in hours or days, compared to weeks or months in vertebrates. Cell biologists use clear embryos for experimental approaches, such as the study of the cytoskeleton during cell cycle. Ecologists take advantages of embryos susceptibility to environmental changes to investigate for example, ocean acidification. Evolutionary biologists compare developmental patterns, along with genetics and biochemistry to infer evolutionary relationships. Learning how to capture, manipulate and culture embryos is the first step biologists devote before starting their actual research. Currently, some of the most studied marine invertebrate phyla during development are Echinodermata, Mollusca, Chordata and Arthropoda. This work is based on the Comparative Invertebrate Embryology summer course at Friday Harbor Laboratories. About ten marine invertebrate phyla will be described during development, from fertilization to larval stage. Moreover, specimen collections in their natural environment, procedures for gametes spawning, and culturing embryos techniques will be reported. Finally, some experimental approaches used in developmental biology, such as cell live imaging, will be illustrated.

**Visualization of Lipid-Linked Prodrug in Drug Delivery Vehicles. Rajendra Gautam.**

Rajendra Prasad Gautam, Mendi Marquez, Michaelann S. Tartis, and Sally C. Pias

*Department of Chemistry and Chemical Engineering, New Mexico Tech*

Drug delivery is problematic for highly hydrophobic and highly toxic compounds, for which conventional delivery in the blood is not feasible. We are implementing a lipid-linked prodrug strategy to enable drug incorporation into lipid-based delivery vehicles. As such, we have attached one or two fatty acyl tails to the hydrophobic anticancer drug dihydropyridopyrazole
(DPP) and are piloting a “smart design” approach that combines experimental and computational modeling. Our goal is to develop a realistic model of lipid-based drug delivery vehicles incorporating DPP prodrug. We aim to visualize the system on a molecular level, to explain experimental observations, and to make predictions that help improve the system. Keywords: Prodrug, drug delivery, computational modeling.


Curriculum and Instruction, New Mexico State University

Serving over a million children each year labeled as “vulnerable”, a major component of the U.S. federally sponsored Head Start program is nutrition; however, nutrition has been constructed under white, western medical models, diminishing the connection between body, mind, and spirit many communities of color value and honor. As such, in this paper, I use Black feminist perspectives (Collins, 2008) to deconstruct and reconstruct the nutrition aspect of Head Start, specifically focusing on programs that serve communities in the U.S./Mexico borderlands.


Durga Neupane and Erik Yukl.
Department of Chemistry & Biochemistry, New Mexico State University.

Transition elements such as Fe, Cu, Zn, Mn are critical factors for essential biological processes like respiration, catalysis, signal transduction etc. Bacteria have adopted highly sophisticated importers for uptake of these elements in order to survive in very diverse environments. One
such example is pathogenic bacteria which competes with host proteins for the limited availability of these metals and constitute important virulence factor. These importers are highly conserved across many bacterial species. In our laboratory, we are interested to assess the involvement of genes which are affected by Zn availability. Our previous quantitative real time PCR results showed that scarcity of Zn in culture media significantly increases the expression of ABC (ATP binding Cassette) solute binding proteins such as *pden_4140* (*znuA* homologue of *E.coli*), *pden_1597* as well as Zn chaperone protein *pden_1598*. Alternatively, we have employed RNA Seq to determine which genes are differentially expressed in Zn deplete (No added Zn/ 0 Zn) media as compared to Zn replete (50uM added Zn) media. RNA Seq results showed that there are 133 genes upexpressed while 14 genes downexpressed significantly in Zn deplete condition. Thus, RNA Seq has given the opportunity to identify several new proteins including regulatory proteins which are involved in Zn homeostasis.

**Online Democracy: Join the future of democracy. Armando Altamirano**

*Curriculum and Instruction, New Mexico State University.*

This paper talks about how nowadays with the use of internet technologies citizens are engaging and constructing democracy in radical new ways. This discussion focuses on some of the key aspects of what the new future of democracy looks like, called Digital Democracy.

Aryal Arjun.

Department of Physics, The University of Texas at El Paso, 500 W University Avenue, Texas 79968 USA

A npn phototransistor which has been tested with the pyranometer to measure solar radiation is found to be the better one compared to photocell. The solar radiation measurements due to the npn phototransistor follows similar trend with the pyranometer (solar integrator 118) which is assumed as standard one. The less deviation between the pyranometer and phototransistor, more correlation coefficient between them ensures the good reliability of the instrument compared to other instruments.

Using npn phototransistor, the daily instantaneous global solar radiation at Kirtipur (27°40'N, 85°16'E, 1374m) and Kalanki (27°41'N, 85°16'E, 1322m) has been measured for the period of 12 days in the month of April and May of 2011. This measurement has been ascertained by the instrument after it was calibrated with Solar Integrator 118 of good reliability. The maximum and minimum solar energy observed during the observation period in Kirtipur was 22.0 MJ/m² and 18.8 MJ/m² and it in Kalanki it was 27.0 MJ/m² and 20.4 MJ/m². The observed values are based on measurements in the interval of 15 minutes. Each observations were compared with the theoretical model (Normal Cosine Model) to see the departure between the theoretical and observed values in terms of percentage. Also the cost analysis between the standard pyranometer and the npn phototransistor was carried out. This was presented in terms of expenditure and this reliable model offered similar characteristics to those of high quality pyranometers and therefore, can be used in any installation where reliable measurement of solar irradiance is necessary, especially in those where cost is a deciding factor in the choice of a meter. The overall results indicated a good agreement between the values obtained from both instruments.

Keywords: (solar radiation, pyranometer, correlation)
Educational learning game: new opportunity for youth to learn. Gaspard Mucundanyi.

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Parents buy electronic toys for their kids as ways of keeping them busy. Those kids start playing with electronic toys at young age. As they grow up, they continue to play video games for fun and develop behaviors that are important for learning before they go to schools such as making decisions, understanding and respecting rules.

Schools prevent today’s youth, who are technology savvy, to learn from their learning experience and do not value their prior knowledge. First, students are bored in classrooms that disconnect learning with playing games while they are engaged and having fun in playing games at homes, Aldrich (2005). Second, spending hours by playing video games is most likely regarded as obsession while spending the same hours playing a piano is supported as a passion (Olhtouse, 2009). However, games support, motivate, and engage learning.

Educational games in classrooms motivate youth to engage in learning, make decisions, improve group communication, have ability to solve problems, and develop cognitive learning and critical thinking (Pivec, 2007; Squire, 2013) needed for their future careers. In addition, well designed education games value social and cultural differences of students. Thus, educators must understand that “game-based learning is not just creating games for students to play it is designing learning activities that can incrementally introduce concepts, and guide users towards an end goal” (Pho & Dinscore, 2015, p. 1) where “playing video games could be both educative and fun “(Olthouse, 2009, pp. 6-7).

Learning must value funds of knowledge (Darling-Hammond & Bransford, 2005) and consider prior knowledge of students. So, teachers must use higher order thinking evaluation rubric (Rice, 2007) to evaluate video games to be used in classrooms. The rubric allows teachers to check whether the video games develop critical thinking of students in their respected courses. Equally
important, educational games designers must follow steps of Pivec and Sfiri (2004) which consist of determining pedagogical approach -how you believe learning takes place, situating the task in a model world, elaborating the details, incorporating or underlying pedagogical support, mapping learning activities to interface actions, and mapping learning concepts to interface objects. As a result, educational games would create opportunity for youth to engage in learning.

**Keyword:** Youth learning, education game, designing education games.

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**Rhetoric of Empire in Kincaid’s Among Flowers: a Walk in the Himalaya. Shuv Raj Rana Bhat**

*Rhetoric and Composition, University of Texas at El Paso.*

This paper analyses Antiguan writer Jamaica Kincaid’s travel memoir *Among Flowers: a Walk in the Himalaya* in which readers are transported to diverse mountainous landscapes in eastern Nepal. At the very outset of the travel writing, Kincaid claims that her journey to Nepal is oriented towards going hunting for seeds. Contrary to her claim, the present study argues that her travel to Nepal is threaded with the rhetoric of metropolitan culture and imperial politics that provide the orientalist lens through which the representation of the travelled places and people of Nepal is made. Nepal is defined and described through the rhetoric of nomination, estheticization, debasement, classification, dominative gaze and naturalization. Employed as frameworks for the examination of language, these rhetorical modes manifest Kincaid’s imperial desire onto Nepalese landscapes, people and culture.
Synthesis of peptide phenyl thioesters using a solid support with a photoreactive nitroindoline linker. Andrew Pardo

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Peptide phenyl thioesters are particularly reactive starting materials for Native Chemical Ligation. Here we present a new photochemical method for the synthesis of peptide phenyl thioesters under neutral reaction conditions with various C-terminal amino acids. The photoreactive peptides are synthesized by Fmoc strategy on the solid support with a photoreactive nitroindoline linker. After cleavage of the photoreactive and fully protected peptide from the beads an auxiliary nucleophile such as N-hydroxybenzyltriazole or N-hydroxysuccinimide is used to photochemically generate the activated peptide thioester in situ. Then thiophenol is introduced in the dark. This new method enables us to synthesize peptide phenylthioesters up to 21 amino acids long in good to high yields, and with low epimerization at the C-terminal.


Department of Mathematical Science, Eastern New Mexico University.

To provide incentive for active risk managements, tail-preserving and coherent distortion risk measures are needed in the actuarial and financial fields. In this paper we propose extended versions of Wang transform using two different forms of flexible skew-generalized distribution functions and two different forms of flexible skew-generalized $StS$-distributions with normal kernel and cauchy kernel. We proved that the flexible skew-generalized risk measures in Choquet integral form with normal kernel and cauchy kernel are coherent and the degree-two
tail-preserving for usual bi-atomic risk distributions. Some properties of flexible skew-
generalized t distortion functions with normal kernel and cauchy kernel and their corresponding
risk measures are studied. Also under some plausible conditions, the portfolio optimization is
explored for the capital asset pricing model (CAPM) where the pricing strategy uses the
generalized Wang transform as the distortion functions.

Sustainable Practices in Smallholder Agriculture: Case Studies from Mountains and Plains
of Nepal First. Rajan Ghimire.

New Mexico State University Agricultural Science Center, Clovis, NM

Nepal is facing several problems associated with soil quality and sustainable crop production.
Studies revealed several constraints in soil fertility management as a result of deforestation and
other land use changes. These changes include non-agricultural uses of fertile land, cultivation in
highly depleted soils, burning of crop residues, imbalanced use of agrochemicals, and limited use
of farm yard manure and compost. Continuous cultivation without the addition of an adequate
amount of organic residues and intensive cultivation have depleted soil organic matter (SOM)
and nutrient reservoir in the landscape of mountains and plains of Nepal. Innovative farmers
adopted integrated nutrient and crop management practices to increase crop production and
improve the sustainability of small-holder farming systems. We reviewed the status of soil
organic matter in south Asia in general and Nepal in particular and discussed cases of innovative
approaches in farming to improve the performance of traditional farmlands in mountains and
plains of Nepal through their effects on SOM and nutrients. The first case study discusses
changes associated with conversion from slash and burn agriculture to terraced farmlands in
Chitwan, Nepal. The second case study discusses the influence of integrated agriculture in soil organic matter, and nitrogen concentrations in mountain farms of Nuwakot and the third study discusses the influence of agroforestry system in restoring soil fertility status of typical farms in Chitwan plains. Our study revealed positive effects of integrated agriculture for enhancing soil quality and improving the sustainability of agriculture. Conversion of sloping land into terraced farmland not only minimized soil erosion but also mitigated nutrient loss from farmed slopes. An integrated system in Nuwakot accumulated 9% more SOM than a conventional system. In Fulbari, on the other hand, agroforestry system accumulated 13% more SOM than conventional farms. Soil N, however, was greater in the integrated system than in the conventional system in Nuwakot, and it was lower in the agroforestry system than in the conventional system in Chitwan. The divergence in the response of SOM and N is associated with crop diversity in integrated systems. There was greater crop diversity in the integrated farm in Nuwakot and lower diversity in the integrated farm in Chitwan compared to the conventional systems typical in the area. Our study also revealed several constraints of soil fertility management and crop production such as no availability of location specific technical information, financial resources, and farm inputs to improve crop production in mountains and plains of Nepal. Location specific applied research is required to improve the sustainability of smallholder farming in Nepal.
Role of Diaspora for Sustainable Homeland: Towards Making the Differences in Societal Well-being of Nepal. Drona P. Rasali, PhD, FACE*

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Keywords: Nepali Diaspora, Homeland, Sustainability, Societal wellbeing, disparity, social change, nudging

Nepal is generally seen as a peaceful nation with a promise for sustainability. It is because the people have learnt to show smiles in their faces, hiding all the pains of hardships and discontent they experience in everyday life. This experience of people comes with varying degrees of tolerance to deprivation resulting from disparate management of the rich geographic, demographic and socioeconomic diversity for past centuries. Towards the end of 20th century, the country was beginning to show some vivid manifestations of a serious form of ‘societal malfunction’ that has been brewing from the past. We can refer this phenomenon to as a ‘perfect storm’, judging by a sequence of events such as a long stretch of armed conflict, followed by political instability, ethnic tensions, masses of youth fleeing abroad, wide spread corruption by those in powers who reap the benefits from the social status quo, and not to mention, palpable external interferences. These manifestations of societal malfunction serve effectively as the evidence of widespread unjust social disparity, which, in turn, disrupts sustainability of the country.

In the positivity, however, endurance of the people to live with varying levels of hardships across the gradients of deprivation and relatively quicker adoption of amenities of modernity are the
two opposing sides of a coin that we carry with us. Both these characteristics are the biggest facilitators of societal well-being and prosperity for sustainability of the country.

The gradients of social deprivation are still a vivid reality that a vast majority of people have to live with. The notion of discrete ‘Highs’ and ‘Lows’ among the people (Rasali, 2012; Rasali et al., 2015) is generally ‘taken for granted’ in our traditional cultural settings handed down from the past.

While the vast majority of people living inside the borders of Nepal especially with the traditional mindset find it challenging to move away from the ‘status quo’, Nepali people living abroad, generally referred to as Diaspora have a role to play in navigating the possibilities of sustainable future through a social change suited to the contemporary world. The Diaspora have also accumulated the wealth of knowledge and technological skills that need to be passed on to the homeland, guiding how they are properly adopted, nurtured and utilized for the sustainable wellbeing of the society. The Diaspora possess the know-how to bring a ‘transformative social change’ for making the differences in the societal well-being, which can be turned into practice through a subtle process such as ‘nudging’ (Thaler and Sunstein, 2008) guiding through the sequence of events to create a conducive and supportive environment for real ‘change’, when other required conditions are already in place.

The Diaspora can support the country’s sustainability in a significant way by easing out tensions arising from the social deprivations among the people. Currently, remittances to the families, regular touristic visits to the homeland, humanitarian support at times of needs, lobbying from the respective country of residence for bilateral and multilateral cooperation, financial investment in industry and commerce, and transfer of knowledge and technological skills through various initiatives can serve as contributing elements of the economic diplomacy for the
country. While the World Bank data shows personal remittances of Nepali Diaspora accounting for 30% of the total GDP of Nepal in 2014, the Diaspora’s vast wealth of knowledge and technological skills (Adhikari and Dahal, 2015) can be readily utilized for their innovative ideas to be turned into a series of productive industries for the short to long term sustainability. Furthermore, the Diaspora’s role in effective mobilization of economic diplomacy in Nepal has been considerable (MoFA/IFA, 2014).

At the same time, for sustainability, we need to develop innovation, knowledge and technology in the homeland from within. In particular, skills, knowledge and innovation (SKI) transfer initiative and Open University of Nepal (OUN), which is declared as the NRNA’s flagship project, can play pivotal role in leveraging the Diaspora’s role. The OUN initiative aims to close the gap in higher education demand, currently unmet by the combined capacity of existing institutions (Dhakal et. al., 2010; Rasali et al., 2015). It is envisaged as a vehicle for ‘transformative change’ in Nepal, not merely another institution of higher learning. This change can come effectively through the impact of ‘nudging’ efforts to influence the functioning of the society as a whole, rather than the Diaspora making direct interventions, such as driving a political movement or making a legislative instrument for social change.

The Nepali Diaspora, as we can visualize, is a part of Nepal’s integral entity that is making significant contributions to sustainability of the country. This fact deserves a formal recognition by the society and the state.

References:


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**Extended Abstract on Poster Presentation**

**Regioselectivity of H2O@C60 fullerenes, Govinda KC.**

Govinda KC, J. U. Reveles, Tunna Baruah, and Rajendra Zope  
*Department of Physics, University of Texas at EL Paso*

An experimental study in 2011 showed successful doping of the C60 fullerene with a single H2O molecule. The presence of a water molecule inside the cage will affect the exohedral reactivity of the C60 cage with respect to that of free C60. We are using density functional theory to understand the changes in the chemical reactivity of water containing C60 fullerene. Preliminary results on the energetics and reaction barrier will be presented.
Dear NeSA members, participants of Eight NeSA International Conference, speakers, delegates, and guests:

It gives me a great pleasure to write a few words of good wishes for the 8th International Conference by NeSA entitled “Role of Diaspora for Sustainable Homeland” to be held at New Mexico State University (NMSU) in Las Cruces on March 12, 2016.

I fondly remember the opportunity to provide the key note speech at the 6th NeSA Conference in Las Cruces, where I was deeply impressed by the enthusiastic work of the Nepali students NMSU.

NeSA has established a commendable tradition of organizing an international conference each year and bring well known Diaspora speakers to provide the key-note and topical talks. This practice not only helps the students learn of new ideas, but also provides an opportunity for the speakers to share their thoughts and get important feedback from the fresh minds at the university. Most importantly, the deliberations done at NMSU each year also provide important ideas for the policy makers and researchers in Nepal in the areas of economic and social development.

Sustainability is a key foundation for all economic development efforts. Also, it is now well established that the development of native land can be solidly supported and catalyzed by the efforts of their Diaspora. In this context, the 2016 conference theme is very relevant.
Thank you Roshani Rajbanshi, Uttar Shrestha, Gopal Tamang and entire conference organizing committee for the great work, and for approaching me to send my good wishes.

I wish you all a very rewarding conference.

Sincerely,

Ambika P. Adhikari, Dr. Des., AICP
Program Manager (Research), Office of Knowledge Enterprise Development
Research Professor (Affiliate Faculty), School of Geographical Sciences and Urban Planning
Senior Sustainability Scientist, Julie Ann Wrigley Global Institute of Sustainability
Arizona State University
Best wishes note from Gyanu Lamichhane, Ph.D

‘Dear NeSA members and the organizing committee: I seldom see a group of students away from their motherland who come together, think and ask others to think about ways to leverage their mind and resources to the benefit of the motherland and her people. Although the US east coast has a far larger student/member populace from Nepal, I have yet to witness a meeting dedicated to thinking FOR the motherland. By organizing this conference on a regular basis and including the diverse Nepali diaspora and our American friends, you have done something that every Nepali community dreams of. This shows that NeSA is very thoughtful and compassionate. May you continue to inspire these attribute in all of us. It was a honor to be among you last year.

Thank you and best wishes.’

Informal addition: ‘Members of NeSA, especially Bishnu bhai, also sing very impressive Dohori Geet. Enjoy.’

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We also express our gratitude to Advisors, Nepalese Community, the entire faculty, staff, students and the presenters who have energetically worked in making the “NeSA Eighth International Conference” a great success. The program would not have reached this point without your contribution. We are grateful to the Campus Activity, the Building Manager of the O’Donnell for providing the space and all the necessary equipment for this conference.

Dinner at 6:00 pm at Corbett Senate Gallery
The Eighth International conference on Role of Diaspora for Sustainable Homeland
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