

## CONFERENCE PROGRAM

8:00 a.m. to 8:30 a.m.	Registration	339 Cartwright Center
8:30 a.m. to 8:40 a.m.	Welcome	339 Cartwright Center
8:45 a.m. to 9:15 a.m.	Presentations	3 <sup>rd</sup> floor Cartwright Center
9:25 a.m. to 9:55 a.m.	Presentations	3 <sup>rd</sup> floor Cartwright Center
9:55 a.m. to 10:15 a.m.	Break (coffee)	339 Cartwright Center
10:15 a.m. to 10:45 a.m.	Presentations	3 <sup>rd</sup> floor Cartwright Center
10:55 a.m. to 11:25 a.m.	Presentations	3 <sup>rd</sup> floor Cartwright Center
11:35 a.m. to 12:05 p.m.	Presentations	3 <sup>rd</sup> floor Cartwright Center
12:10 p.m. to 1:00 p.m.	Luncheon And Open Forum	339 Cartwright Center

# 20th Annual Faculty Research Day

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**8:00 a.m. to 1:00 p.m.**  
**January 23, 2015**  
**Cartwright Center**

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### Celebrate

*research at UW-La Crosse and  
share in the endeavors of colleagues  
and their students*

### Learn and Share

*about research, scholarly and  
creative activities at UW - L*

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This day to celebrate research is sponsored by the  
University of Wisconsin-La Crosse  
Provost/Vice Chancellor and the  
Office of Research and Sponsored Programs  
La Crosse, WI 54601

Open Forum:  
***“Multidisciplinary Intellectual Property Support”***

*Featured Speaker:*

***Arjun Sanga***

*WiSys Technology Foundation Executive Director*

How can scholars translate the ideas and knowledge generated through their work into applications in business and industry? WiSys Executive Director, Arjun Sanga, will discuss the support provided by WiSys for activities related to intellectual property, patenting and licensing, applied research, and technology transfer. Examples of past WiSys-supported projects from multiple disciplinary backgrounds will be offered. He will also address questions from attendees.



**20th Annual Faculty Research Day**  
~ January 23, 2015 ~

**Session I - Presentations: (8:45 - 9:15 a.m.)**

**Rm #**

- A. Ocean/Land Photographs of Contemporary Fiji** 326 CC  
*Kate Hawkes (Art/Photography)*
- B. Radiation Damage of Zinc Oxide Materials** 330 CC  
*Seth King (Physics)*
- C. Under the Radar: A Conversational Case Study about Audit Evidence Manipulation, Circumvention, and Fabrication** 332 CC  
*Eddward Herron (Accountancy)*
- D. Beyond Research Literature: Clinicians' Views of Evidence in Everyday Practice** 337 CC  
*Deborah Dougherty (Health Professions/Occupational Therapy)*

**Session II - Presentations: (9:25 – 9:55 a.m.)**

**Rm #**

- E. Is Aristotle's Prime Matter Essentially Extended?** 330 CC  
*Mary Krizan (Philosophy)*
- F. Learning without Learning: Implicit Knowledge Acquisition in Science Labs** 331 CC  
*Hayley Hudson (Chemistry and Biochemistry)*
- G. Wildlife Conservation and Community Water Access Conflicts: The Challenge of Meeting Global Biodiversity Goals and Sustainable Development in Northern Kenya** 332 CC  
*Daniel Sambu (Geography/Earth Science)*
- H. A Walk on the Wild Side: A Plant Ecologist Explores Wildlife Ecology** 337 CC  
*Meredith Thomsen (Biology)*

**Session III - Presentations: (10:15 - 10:45 a.m.)**

**Rm #**

- I. Outdoor Recreation for "Every Body"? An Examination of Constraints to Outdoor Recreation for Individuals who are Significantly Overweight** 330 CC  
*Gretchen Newhouse (Recreation Management/Therapeutic Recreation)*
- J. Application of Differential Equation Models in Information Management** 331 CC  
*Brian Yang (Information Systems)*
- K. 'Mom-In-Chief' Rhetoric as a Lens for Understanding Policy Advocacy: Generating Hypotheses Using Video Footage from Michelle Obama's Speeches** 332 CC  
*Ray Block (Political Science and Public Administration)*  
*Christina S. Haynes (Women's, Gender, and Sexuality Studies)*
- L. What is Strategic Planning?** 337 CC  
*Charley Swayne (Management)*
- M. Assessing Local Population Vulnerability to Wind Energy Development Using Branching Process Models** 340 CC  
*Eric Eager (Mathematics)*

**Session IV - Presentations: (10:55 a.m. - 11:25 a.m.)**

**Rm #**

- N. Characterizing Spatio-Temporal Distribution of Land Use and Land Cover Change in Ganges Delta Region** 330 CC  
*Gargi Chaudhuri (Geography/Earth Science)*
- O. What Does it Mean to Belong? Diaspora and Immigrant Ukrainian Youth in the Chicago Area** 331 CC  
*Elizabeth Peacock (Sociology/Archaeology)*
- P. Knowledge, Virtue and Vice** 332 CC  
*Eric Kraemer (Philosophy)*
- Q. Geometry and Dynamics in Gromov Hyperbolic Metric Spaces** 337 CC  
*Tushar Das (Mathematics)*
- R. Effects of Kinesiology Tape on Performance and Serum Creatine Kinase during Recovery from Delayed-Onset Muscle Soreness** 340 CC  
*Naoko Aminaka (Exercise and Sport Science)*

<b>S. Self-Stabilizing Power-Law Networks</b> <i>Andrew Berns (Computer Science)</i>	<b>330 CC</b>
<b>T. Following the Lead of a Sleep-Deprived Dancer</b> <i>Barrett Klein (Biology)</i> <i>Sam Schneider (Undergraduate student)</i>	<b>331 CC</b>
<b>U. Economic Globalization and Governance: The Role of Social Globalization</b> <i>Nabamita Dutta (Economics)</i>	<b>332 CC</b>
<b>V. Contemporary Perspectives of Sublime Experiences in National Parks</b> <i>Laurie Harmon (Recreation Management/ Therapeutic Recreation)</i>	<b>337 CC</b>
<b>W. Illustrated in Postcards: Employing Visual Evidence to Author an Approachable Historic Narrative of La Crosse, Wisconsin</b> <i>Laura Godden (Murphy Library)</i> <i>Paul Beck (Murphy Library)</i>	<b>340 CC</b>



## 20th Annual Faculty Research Day

### PRESENTATIONS

(8:45 a.m. to 12:10 p.m.):

#### A. Ocean/Land Photographs of Contemporary Fiji

*Kate Hawkes (Art/Photography)*

This series of photographs investigates themes of family, home, environment, belonging, the complexities of national and cultural identity, and childhood memory in the South Pacific. This body of work, "Ocean/Land" was exhibited at the Oceania Centre for Arts, Culture and Pacific Studies in Suva, Fiji in August of 2014. This project and the exhibition were supported by the Fulbright Program, UW-L College of Liberal Studies, and the University of the South Pacific.

#### B. Radiation Damage of Zinc Oxide Materials

*Seth King (Physics)*

Zinc oxide (ZnO) has begun finding wide spread application as the transparent conducting layer in photovoltaic devices. However, exposure to radiation, be it on earth or in space, will inherently degrade the integrity of this material, altering its fundamental properties. While numerous studies have exposed ZnO to neutron and proton sources, none have yet studied the prolonged effects of ZnO exposed to gamma radiation. In this study, we investigate the structural, optical, and electronic changes induced by gamma radiation damage to ZnO thin films as a function of irradiation time.

#### C. Under the Radar: A Conversational Case Study about Audit Evidence Manipulation, Circumvention, and Fabrication

*Eddward Herron (Accountancy)*

Capital markets depend heavily on the information provided by independently audited financial statements. Those audits, in turn, rely upon credible audit evidence. This factually-based "conversation" explores the potential for corruption of those financial statements. The case may also be used as a springboard for examining the ethical underpinnings of business participants in general.

#### D. Beyond Research Literature: Clinicians' Views in Everyday Practice

*Deborah Dougherty (Health Professions/Occupational Therapy)*

Clinical professions are called to be increasingly "evidence-based." However, growing research suggests that "evidence" is defined differently in research and clinical practice contexts. This descriptive study examines the perspectives of six local occupational therapists in relation to the definition, use, and generation of "evidence" in practice. Findings support that "building evidence" in research and practice are different and suggest a new conceptualization of evidence-based practice.

#### E. Is Aristotle's Prime Matter Essentially Extended?

*Mary Krizan (Philosophy)*

Aristotle's prime matter – the most fundamental type of matter in his metaphysical and scientific writings – is sometimes thought to consist of an indeterminate extension. In this paper, I appeal to Aristotle's concepts of extension, magnitude, and matter to argue that his most fundamental type of matter is not essentially extended or stretched out in three dimensions. I then explain why the implication, while seemingly paradoxical, is not a problem for Aristotle's theory.

**F. Learning without Learning: Implicit Knowledge Acquisition in Science Labs***Hayley Hudson (Chemistry and Biochemistry)*

In a lab, what the students should learn is stated clearly and explicitly. However, there is an understated element of lab work that involves implicit learning. The students' ability to recall what they subconsciously learned concerning type and function of glassware was quantified and the results were analyzed. Factors such as age, major, background, and gender were analyzed, as well as the students' conscious self-assessed comfort in and around a lab setting.

**G. Wildlife Conservation and Community Water Access Conflicts: The Challenge of Meeting Global Biodiversity Goals and Sustainable Development in Northern Kenya***Daniel Sambu (Geography/Earth Science)*

Kenya, like many developing countries, is a signatory to the United Nation's (UN) programs that are meant to fight poverty through sustainable development policies. The objective of the paper is to facilitate a better understanding of the complex interaction of natural resource access, wildlife conservation, and community livelihoods in the light of meeting UN mandates. The recommendations might allow the country calibrate future global policies to suit local diversities in the region.

**H. A Walk on the Wild Side: A Plant Ecologist Explores Wildlife Ecology***Meredith Thomsen (Biology)*

During my sabbatical, I participated in a research project focused on pumas (aka mountain lions) in the Santa Cruz Mountains in northern California. In this presentation, I will relate some of my experiences with the puma project, share the preliminary results of a trophic cascade experiment I established in collaboration with the puma researchers, and describe a camera trapping project I have started in the La Crosse area since my return.

**I. Outdoor Recreation for “Every Body”? An Examination of Constraints to Outdoor Recreation for Individuals who are Significantly Overweight***Gretchen Newhouse (Recreation Management/Therapeutic Recreation)*

While some research illustrates the general constraints to physical activity and leisure pursuits, there is no literature specifically targeting the constraints to participation in outdoor recreation for people who are significantly overweight. This focus group research study examined the structural, intrapersonal, and interpersonal constraints to outdoor recreation for individuals who are significantly overweight and provides valuable information to guide the next steps needed to adequately understand and address these issues.

**J. Application of Differential Equation Models in Information Management***Brian Yang (Information Systems)*

The differential equation model is a widely used mathematical model in analyzing the dynamic situations in the engineering field. The model can be also used to analyze the dynamic situation of the management arena as well. However, the model is not as popularly used in management, especially in the information systems discipline. In this paper, I researched the possibility of the application of differential equation models to the information systems problems. I listed six application examples in which differential equation models can be applied: Cannibalism in Click and Mortar E-tailing (Competing species: Rabbit versus Sheep); Analysis of the First Mover and Fast Follower (Predator-Prey model); Comparison of promotion strategy in typical and social network market (Conflict model: conventional and Guerrilla combat); Consumer behavior model: Exposed (contacted) - purchase - post purchase (SIR model: Susceptive - infective - Removed); Formation of informal group (Reaction-Diffusion System); and Information Transfer and Distortion or Innovation and Diffusion (Advection and diffusion). This research is in its initial stage, and data gathering to decide the value of coefficients will follow. Afterwards, it will be analyzed by a differential equation analysis software and the results compared to previous research results.

**K. ‘Mom-In-Chief’ Rhetoric as a Lens for Understanding Policy Advocacy: Generating Hypotheses Using Video Footage from Michelle Obama’s Speeches***Ray Block (Political Science and Public Administration)**Christina S. Haynes (Women’s, Gender, and Sexuality Studies)*

To learn more about the processes by which Michelle Obama uses media exposure to influence public perceptions, we generated hypotheses using a sample of the First Lady’s political speeches while exploring the rhetorical artifacts found in two of her major policy initiatives: the Joining Forces program for military families, and the Let’s Move! campaign against childhood obesity. By expanding upon a theoretical framework developed in Kahl (2009), synthesizing ideas from the Michelle Obama literature, and making use of the resources offered by the C-SPAN video library, we offer much-needed insight into the First Lady’s skill as an orator and agenda setter. Specifically, the Joining Forces and Let’s Move! initiatives provide ideal cases for understanding how Mrs. Obama uses “mom-in-chief” rhetoric to not only counteract—and perhaps transcend—negative stereotypes of African-American women, but also to advance her political causes.

**L. What is Strategic Planning?***Charley Swayne (Management)*

This presentation focuses on how the greatest leaders in the world turn dreams into reality.

**M. Assessing Local Population Vulnerability to Wind Energy Development Using Branching Process Models***Eric Eager (Mathematics)*

The development of wind energy facilities may adversely affect local wildlife populations. Quantifying this impact is important for conservation biology and wildlife management. In this talk, I will describe how to use branching process models to quantify the risk associated with wind energy development using four representative species.

**N. Characterizing Spatio-Temporal Distribution of Land Use and Land Cover Change in Ganges Delta Region***Gargi Chaudhuri (Geography/Earth Science)*

This study focuses on patterns and processes of urbanization in Ganges delta region of India and Bangladesh, and its relationship with the changes in the land surface temperature (LST). Analysis was conducted using satellite imageries of 1989, 2005, and 2010 to develop multi-temporal land cover maps and LST maps. The study revealed that out of the total area of change, 27.88% and 59.39% was converted to urban in India and Bangladesh, respectively. The land surface temperature in India decreased when land was converted from agriculture to rural but increased when rural and agricultural land was converted to urban.

**O. What Does it Mean to Belong? Diaspora and Immigrant Ukrainian Youth in the Chicago Area***Elizabeth Peacock (Sociology/Archaeology)*

This exploratory research examined the ethnic identity of young people in the Ukrainian community in Chicago, and to what degree they understood themselves as members of a wider, global Ukrainian community. Dominant discourses included a desire to maintain their unique ethnic and linguistic identity, and to eventually pass it on to the next generation. However, there were obvious tensions linked to immigration narratives and a lack of meaningful interaction between diaspora and immigrant youth.

**P. Knowledge, Virtue and Vice***Eric Kraemer (Philosophy)*

Virtue Epistemologists explain our having knowledge by appealing to intellectual virtues exhibited by knowers. But, the view's defenders do not explicate how intellectual virtues actually work, and they face cognitive psychological concerns regarding wide-spread error due to intellectual vices. I examine the role the virtue of intellectual courage plays with respect to gaining knowledge, and I argue that virtue epistemologists must concern themselves not only with cultivating intellectual virtue, but also with neutralizing intellectual vice.

**Q. Geometry and Dynamics in Gromov Hyperbolic Metric Spaces***Tushar Das (Mathematics)*

We present various theorems from our development of the theory of groups and semigroups acting isometrically on Gromov hyperbolic metric spaces. Our goal was to generalize the classical theory of Fuchsian and Kleinian groups acting on two- and three-dimensional hyperbolic space of constant negative curvature. We avoid any assumption of properness/compactness, keeping in mind the motivating example of infinite-dimensional real hyperbolic space, where greater degrees of freedom induce a range of phenomena not to be found in the classical theory. This project is joint work with David Simmons (Ohio State) and Mariusz Urbanski (North Texas).

**R. Effects of Kinesiology Tape on Performance and Serum Creatine Kinase during Recovery from Delayed-Onset Muscle Soreness***Naoko Aminaka (Exercise and Sport Science)*

Kinesiology Tape (KT) is marketed to provide faster healing to tissues; however, no empirical research has shown effectiveness of KT on how people recover from delayed-onset muscle soreness (DOMS). In this study, those who randomly received KT had overall lower level of creatine kinase (CK) in blood, which is linked to muscle inflammation that may be present with DOMS, compared to those in the Placebo or Control groups.

**S. Self-Stabilizing Power-Law Networks***Andrew Berns (Computer Science)*

Power-law networks are networks where the degree distribution follows a power law. These networks occur in nature and society quite frequently, including social networks and protein interaction networks. In this presentation, I discuss our new work on creating power-law networks in a distributed computer system using logical links. Our algorithms are capable of transforming any computer overlay network into a power-law network quickly.

**T. Following the Lead of a Sleep-Deprived Dancer***Barrett Klein (Biology)**Sam Schneider (Undergraduate student)*

Communication is vital for humans and honey bees alike. Honey bees perform dances that can advertise the location of a food source. When restricted of sleep, honey bees still perform dances, but the direction component of the dance is less precise than if she had not lost sleep. Signaling is one half of communication, but what about the receiving end? We examined videotapes taken of dancers and blindly analyzed the behavior of dance followers. Sleep loss is expected to adversely impact communication and the resulting efficiency and health of a colony of insects.

**U. Economic Globalization and Governance: The Role of Social Globalization***Nabamita Dutta (Economics)*

The impact of globalization on the institutional structure of a country has not been adequately studied in the literature. While globalization has the capability of affecting different types of institutions – economic, political or social – we focus on different dimensions of governance. This paper contributes to this literature by exploring how does economic globalization comprising of different aspects of openness, like trade openness, FDI inflows, and portfolio investments, affect the different dimensions of governance. Are all dimensions of governance affected equally by greater economic globalization? Additionally, the paper asks the question – what can affect the impact of economic globalization on governance? While a large part of globalization implies greater trade and FDI inflows, it also implies integration of culture, ideas and vision. In this context, we delve into the role of other aspects of globalization, like that of social globalization, that can affect the relationship.

**V. Contemporary Perspectives of Sublime Experiences in National Parks***Laurie Harmon (Recreation Management/Therapeutic Recreation)*

An increased societal pace, shorter vacation times, and more engagement with technological toys have been suggested to result in decreased likelihood of visitors to connect with and care for National Parks. This study examines visitors' contemporary descriptions of significant natural places and objects. Findings suggest today's visitors may be equally likely to experience awe, beauty and the picturesque at meaningful levels, thus supporting the need to preserve such spaces for future generations.

**W. Illustrated in Postcards: Employing Visual Evidence to Author an Approachable Historic Narrative of La Crosse, Wisconsin***Laura Godden (Murphy Library)**Paul Beck (Murphy Library)*

For their research, Godden and Beck selected and analyzed over two hundred historic postcards in order to produce a renewed social history of La Crosse, Wisconsin. The forthcoming monograph focuses on examining the decades surrounding the turn of the 20th century, an important transitional period for the community under study. Postcards are a valuable research medium because they relay subjects of heightened significance and provide insights about the average citizens of the past.