Chicago Cancer Health Equity Collaborative

Northeastern Illinois University 150 1867-2017

Transforming Lives

MARIE SKLODOWSKA CURIE

WOMEN IN SCIENCE CONFERENCE

SEPTEMBER 18-19, 2017

NORTHEASTERN ILLINOIS UNIVERSITY

Northwestern Medicine®

Robert H. Lurie Comprehensive Cancer Center of Northwestern University

THE UNIVERSITY OF ILLINOIS AT CHICAGO

UIC

Welcome to the Inaugural Women in Science conference, co-hosted by Northeastern Illinois University and the Chicago Cancer Health Equity Collaborative

This Conference brings together scholars, educators, students of all ages, their families, and the Chicago community at-large to celebrate the life, scientific accomplishments, and legacy of Marie Skłodowska Curie, the first woman to win the Nobel prize and the only person to receive two Nobel prizes in two different disciplines (chemistry and physics). Madame Curie was a remarkable mother, wife, mathematician, physicist, chemist, and social activist. She is remembered for her discovery of radium and polonium, and admired for efforts to integrate the use of radium in medical treatment, including cancer.

Our event has been made possible through funding from the Chicago Cancer Health Equity Collaborative (ChicagoCHEC). CHEC is an initiative funded by the National Institutes of Health (NIH) across the Robert H. Lurie Comprehensive Cancer Center of Northwestern University (NU), the University of Illinois at Chicago (UIC), and Northeastern Illinois University (NEIU). The ChicagoCHEC collaborative grant aims to establish a long-lasting infrastructure of research, education, and outreach across our three universities. In the spirit of Madame Curie, this collaborative seeks to establish community partnerships that will support meaningful cancer research, treatment, education, training and community participation across Chicago.

We have planned an exciting conference. Highlights include:

- Keynote addresses by Julie des Jardins and Sophie Shrand (Science with Sophie).
- Six sessions featuring nearly twenty experts from various fields of study (psychology, chemistry, history, music, physics, education, women studies, mathematics, and medicine) engaging the audience in discussions about the role of women in research, education, and the workplace.
- Three "hands-on" laboratory workshops that include age-appropriate activities for our primary, middle, and high school age visitors.
- Photography Exhibit focused on images from the life of Marie Skłodowska Curie and her family.
- Film Screening: Marie Curie: The Courage of Knowledge (2017)
- Surprise appearance by Marie Skłodowska Curie and her daughter, Irene (1935 Nobel Prize, Chemistry)

We thank all of those who helped make this conference a success including: Michalina Maliszewska, for her energy, management and co-organization of the entire conference schedule; Sharon Hahs, Michael Stern, Nabil Kahouadji, Lidia Filus, Emma Battaglia, Michael Wenz and Elena Navas-Nacher for their input into this inspiring program schedule; Billie Kersh for maintaining the conference website and other media communications with our community; Chriz Cordero for all of her assistance including the graphical design of the conference program; Ann Sleeva for attending to the limitless administrative details of this event; the NEIU Theater for making it possible for Marie and Irene Curie to be here with us; our CHEC colleagues at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University and the University of Illinois at Chicago as well as Michael Hines and John Butler-Ludwig and countless others at NEIU who supported this conference at every step of its making, and finally and perhaps most importantly, the dedicated conference speakers and session chairs who took time from their busy schedules to engage us further into the world of science, research and the importance of the legacy of Marie Skłodowska Curie. You are extremely devoted colleagues and it is our privilege to work with you

We wish you an enjoyable conference at NEIU!

Christina Ciecierski, Professor, Economics
Principal Investigator, Chicago CHEC

Moira Stuart, Professor, Exercise Science
Community Engagement Core Leader, Chicago CHEC

CONFERENCE PROGRAM

Monday, September 18, 2017

5:30 pm – Pre-conference Reception — **Golden Eagles**

6:00 pm – Conference Opening and Welcome — **Alumni Hall**

- Dr. Sharon Hahs, President Emerita, NEIU
- Dr. Christina Ciecierski, Dr. Moira Stuart, ChicagoCHEC, NEIU
- Dr. Witold Zatoński, Marie Sklodowska-Curie Institute of Oncology
  - Rafal Ciecierski, MD, Ph.D., Nephrologist, Aurora Healthcare
  - Reading *My Greatest Wish is the Creation of Radium Institute in Warsaw* by Dr. Witold Zatonski
- Invited dignitaries from the Consulates of Poland and France

6:30 pm – Keynote Address — **Alumni Hall**

- Julie Des Jardins, Author of "Madame Curie Complex: The Hidden History of Women in Science" - *Madame Curie's American Legacy*

7:45 – 9:45 pm – Cultural Program — **Recital Hall**

- Dr. Kuligowska, Radiology, Boston University
  Marie Skłodowska Curie: The First Lady of Science
- Movie Screening: *Marie Curie: The Courage of Knowledge* (95 min)
  Most suitable for audiences over the age of 13.

Tuesday, September 19, 2017

Session I: Marie Skłodowska Curie: Beyond all Barriers — **10:30 am - 12:00 pm**

Alumni Hall

Chair: Nabil Kahouadji, Mathematics, NEIU
Opening Remarks: Michael Stern, Dean, College of Graduate Studies and Research

- **10:50-11:20 am** Sudha Srinivas, Associate Dean, College of Arts and Sciences, NEIU
  Science as a Tapestry: How Advances in One Scientific Field Lead to Discoveries in Another
- **11:20-11:50 am** Aleksandra Jarczewska, Political Science, Warsaw University
  Marie Skłodowska-Curie: Contributions to the Education of Women

Session II: Curing Cancer from the STEM — **12:15-1:30 pm**

Chair: Cindy Voisine, Biology, NEIU — **Alumni Hall**

- **12:15-12:35 pm** Jing Su, Chemistry, NEIU
  Profiling Protein Phosphatase Activity Using Peptide Arrays and Mass Spectrometry
- **12:40-1:00 pm** Cheri Shakiban, Mathematics, St. Thomas University
  Applications of Signatures Curves to Characterize Melanomas and Moles
- **1:05-1:25 pm** Stella Nowicki, Microbiology, Meharry Medical College
  Vitamin D3 in Women's Health Disparities and Recurrent Inflammation, to D or not to D?

CONFERENCE PROGRAM

Session III: STEM to STEAM: Underrepresentation of Females in Scientific Study

Chair: Ruth Church, Psychology, NEIU — **Alumni Hall**

- **1:45-2:15 pm** Hannah Valdiviejas, Theodora Koumoutsakis, Andy Mistak, Amena Khan and Ruth Church, Psychology, NEIU
  Closing the Gender Gap in Math Achievement: The Role Gesture Plays in Education for Girls
- **2:15-2:45 pm** Katherine Peterson, Music, NEIU
  Traditional versus Functional VRPs: Comparing Strategies and results of Amplitude, Frequency, and Egg Waveform in Emerging Artists (sopranos)

Session IV: Photography Exhibit — **3:00-3:55 pm**

The Life and Legacy of Marie Sklodowska Curie — **Student Union**

Large format photography exhibit sponsored by the Embassy of the Republic of Poland, Washington D.C.

Session V: Laboratory Discoveries with Marie Skłodowska Curie — **4:00-5:15pm**

Lab A: — **BBH 234**
Marie Curie and Mathematics, Nabil Kahouadji, Mathematics, NEIU

Lab B: — **BBH 234**
Magic through Chemistry, John Al Bazi, Chair, Chemistry, NEIU

Lab C: *Kids Who Stay Curie-ous*, Emma Battaglia, Alum, Economics, NEIU

Children in primary grades and higher are warmly invited! — **SU 216**

Session VI: Future of STEM: Living Science from Girl to Workplace — **Alumni Hall**

- **5:30 – 6:00 pm** Melissa Simon, Feinberg School of Medicine, Northwestern University
  Navigating the Professoriate to Impact Health Equity
- **6:00 – 6:30 pm** Nicole Woitowich, Women's Health Research Institute Northwestern University; NEIU Alumna, Biology '11
  Why SeXX Matters: From Cells to Scientists

7:00 –8:00 pm – Keynote Presentation — **Alumni Hall**

Sophie Shrand, Creator and Host of "Science with Sophie"
Science With Sophie: One Woman's Approach to Changing the World

Information Tables and Networking Opportunities with Community Partners:

- American Brain Tumor Association
- Chicago Cancer Health Equity Collaborative
- Amber Coalition: Polish-American Breast Cancer Awareness Program

Monday, September 18, 2017

Witold Zatońskia
Marie Sklodowska-Curie Institute of Oncology

Speaker Biography:
Professor Witold A. Zatoński MD has been a leading figure in medicine, public health, cancer epidemiology and tobacco control in Poland and Eastern Europe for over 40 years. He was Public Health Advisor to the Polish Prime Minister and Minister of Finance.
Between 1979 and 2016 Professor Zatoński was the Director of the Division of Epidemiology and Prevention at the Maria Sklodowska-Curie Cancer Centre in Warsaw, Poland. As the founder and President of the Health Promotion Foundation, Professor Zatoński has launched numerous health campaigns in Poland and Europe. He has authored and co-authored over 600 peer-review publications, and dozens of books.

Julie Des Jardins, PhD **6:30 pm**
"The Madame Curie Complex: The Hidden History of Women in Science" Author

Talk Title: Madame Curie's American Legacy
We know that Madame Curie was not American, and yet her impact on American women and American science reverberates today. Julie Des Jardins will talk about her American legacy, focusing on her visits to America and their significance in American science and culture.

Monday, September 18, 2017

Speaker Biography:
Julie Des Jardins is a cultural analyst and historian of American women and gender. She has been Professor of History at Baruch College, CUNY and taught in the History and Literature Program at Harvard University. She has a Ph.D. in American history from Brown University. Along with The Madame Curie Complex (Feminist Press), she has written Walter Camp: Football and the Modern Man (Oxford), Lillian Gilbreth: Redefining Domesticity (Westview), and Women and the Historical Enterprise in American: Gender, Race, and the Politics of Memory (UNC). Currently, she is writing a biography of Curie's American benefactress, the multifaceted Missy Meloney, called The Feminine Art of Power (Basic Books). She lives with her family in the San Francisco Bay area.

Ewa Kuligowska, MD **7:45 pm**
Boston University

Talk Title: Marie Skłodowska Curie: Inspiration and the Mother of Science
Presentation of the life, achievements, and struggles of Marie Sklodowska Curie

Speaker biography:
Dr. Ewa Kuligowska graduated from Warsaw University School of Medicine and completed a Radiology Residency at Temple University in Philadelphia, followed by a Body Imaging fellowship. In 1978 she started working at the Boston University School of Medicine, where she accelerated through the academic ranks to Professor of Radiology and became the Chief of Ultrasound and Abdominal Imaging. Dr. Kuligowska served as the President of the New England Society of Ultrasound in Medicine and as the President of American Association of Women Radiologists. Among her numerous awards are Marie Curie Sklodowska Award of the American Association of Women Radiologist for distinguished radiologist, and the prestigious Medal of Polish Academy of Science. She authored more than 150 research articles, review and editorial articles, a book and many book chapters; she has given 30 named or keynote lectures all around the world.

Tuesday, September 19, 2017

Session I – Marie Skłodowska Curie: Beyond all Barriers **10:30 am - 12:00 pm**

Sudha Srinivas, PhD
Professor, Physics Department, NEIU
Acting Associate Dean, College of Arts and Sciences, NEIU

Science as a Tapestry: How Advances in one Scientific Field Lead to Discoveries in Another

This presentation will provide a historical overview of how the discoveries and advances in one scientific field have impacted another, using examples from medieval astronomy to modern medicine, and including Marie Curie's contributions to science and technology. In particular, this talk will focus on how the pathway to tomorrow's technology is built upon the science of today, and make the case that has been an enduring characteristic of science through the ages.

Speaker Biography:

Sudha Srinivas is a professor of physics at Northeastern Illinois University, Chicago. Dr. Srinivas received her Ph.D. in Theoretical Condensed Matter Physics in 1995 from the University at Albany, State University of New York, where she studied the electronic structure and hyperfine properties of high temperature superconductors. This was followed by postdoctoral research on the computational modeling of metallic nanoclusters in the Chemistry Division of Argonne National Laboratory. Dr. Srinivas has been at Northeastern Illinois University since 2005 and her scholarly interests range from studying the electronic and magnetic properties of condensed matter such as nanomaterials and biomolecules, to working on strategies to engage students in the STEM fields. Dr. Srinivas also serves as PI/co-PI on external grants focused on STEM education, and is currently the Acting Associate Dean of the College of Arts and Sciences.

Aleksandra Jarczewska, PhD
Institute of International Relations, University of Warsaw

Marie Skłodowska Curie and Her Contributions to Education

Marie Skłodowska Curie remains an inspiration and icon among female scientists, who, thanks to her and her work, are not afraid to take on challenges and overcome barriers in professional fields. This presentation, inspired by the life and work of Skłodowska Curie, will appeal to the broadly understood issues of professional activity of women, especially in the scientific community. Nearly a century has passed since the discoveries of Marie Curie were made and much has been done in the sphere of professional and scientific engagement by women (inclusive of science). However, the examination of the research and the facts concerning the scientific work of women shows that many of the problems and adversities that Marie Curie had faced still persist today. These are worth considering with regard to the engagement of women in the fields of science.

Speaker Biography:
Dr. Aleksandra Jarczewska is a faculty member of the Institute of International Relations at the University of Warsaw in Poland. She is a graduate of the American Studies Center (ASC); she participated in international exchange programs at the Indiana University Bloomington, Fulbright American Studies Institute, and was a member of an international project "Political and economic aspects of European integration" ERASMUS Intensive Program. Dr. Jarczewska is a coordinator of the International Exchange Program between the International Relations Institute Northeastern Illinois University. She was a co-founder of the Polish-American Center for Exchange and Research (PEACER). Dr. Jarczewska served as head of graduate and undergraduate programs in International Relations.

Session II - Curing Cancer from the STEM **12:15-1:30 pm**
Chair: Cindy Voisine, Biology, NEIU

- **12:15-12:35 – Jing Su, Chemistry, NEIU**
  Profiling protein phosphatase activity using peptide arrays and mass spectrometry
- **12:40-1:00 – Cheri Shakiban, Mathematics, St. Thomas University**
  Applications of Signatures Curves to Characterize Melanomas and Moles
- **1:05-1:25 - Stella Nowicki, Microbiology, Meharry Medical College**
  Vitamin D3 in Women's Health Disparities and Recurrent Inflammation, to D or not to D?

Jing Su, PhD
Chemistry, NEIU

Profiling Protein Phosphatase Activity Using Peptide Arrays and Mass Spectrometry

Post-translational modification of proteins by phosphorylation and dephosphorylation, mediated by kinases and phosphatases, is a common mechanism that regulates signal transduction and cellular physiology. Currently there is a lack of universal techniques suitable for analyzing activity of endogenous protein phosphatases especially phosphoserine/phosphothreonine (pS/pT) phosphatases in complex samples such as cell lysate and biofluid. This presentation describes the combination of peptide arrays and mass spectrometry (MS) for label-free, high throughput profiling of phosphatase activities in lysates from cells of different phenotypes. The biochip-based assay simplified sample purification and improved the detection efficiency of phosphopeptides for MS analysis, overcoming common technical challenges in utilizing MS to study enzymatic dephosphorylation. Peptide arrays treated with lysates from normal melanocytes and cancerous melanoma cells demonstrated different patterns of peptide dephosphorylation, and decreased overall phosphatase activity is found in melanoma lysates. Inhibitors for different phosphatases were used to reveal that pS/pT phosphatases and dual-specific phosphatases are down regulated in melanoma cells compared to normal melanocytes. The large-scale phosphatase activity assays introduced in this work can be easily adapted to assist phosphoproteomic analysis of many cell signaling events.

Speaker Biography:

Jing received her Ph.D. degree in Chemistry at the University of Chicago, and completed the postdoctoral training at Northwestern University. Her research interests span the areas of bio-organic and biomaterials chemistry, combining diverse tools of chemistry, biology and materials science to develop new methodologies for detection, mechanism study and treatment of human diseases including cancer and diabetes. Currently an assistant professor in the Department of Chemistry at Northeastern Illinois University (NEIU), Jing has worked with students and other faculty members at NEIU on development of anti-diabetic peptide drugs and new techniques for protein function analysis.

Cheri Shakiban, PhD
University of St. Thomas, St. Paul, MN

Applications of Signatures Curves to Characterize Melanomas and Moles

In this talk, we focus on the application of a Euclidean invariant curve, called the signature curve, formed by taking curvature and derivative of curvature with respect to arc length of a closed curve to analyze the contour of melanomas and moles. We calculate the signature curves of the contours of the skin lesions to detect asymmetry, boundary irregularity and diameter size of the skin lesions. By analyzing the signature curves of 60 benign moles and 60 melanomas, we show that the benign and malignant lesions have different global and local symmetry patterns in their signature curves. We will also demonstrate that the regular moles show a high degree of global symmetry, whereas melanomas exhibit multiple types of local symmetry that are embedded within their signature curves. We then turn our attention to the C aspect of the ABCD method by analyzing the color of melanomas and moles. Finally, we use ROC Analysis, a key statistical tool, to analyze the performance of our method.

Speaker Biography:
Dr. Shakiban is a professor of mathematics at the University of St. Thomas in St. Paul, Minnesota, where she has been a faculty member since 1983. She received a Master's Degree in Mathematics from Harvard University in 1975 and Ph.D. from Brown University in 1979 in the area of Formal Calculus of Variations. Her recent area of research is mostly in computer vision, with applications to object recognition. She is the co-author of an Applied Linear Algebra book with her husband Peter Olver; her publications are in diverse areas of mathematics and engineering. She loves to work with undergraduate students, in particular, underrepresented students, to get them involved in doing research in mathematics and encourage them to give conference presentations/posters and submit their work for publication. In addition to teaching regular math courses, she also likes to create and teach innovative seminars such as "Math, Music and Creative Arts", and study abroad courses such as "Math and Architecture of the Incas", and "Math and Mechanics of the Southern European Architecture".

Stella Nowicki, MD, DDS
Professor, Obstetrics, Microbiology and Immunology, Meharry Medical College
President and Founder, The Nowicki Institute for Women's Health

Vitamin D3 in Women's Health Disparities and Recurrent Inflammation, to D or not to D?

Women's health disparities could be partially explained by recurrent inflammation, that are more prevalent in African American (AA) than Caucasian (CS) women. We hypothesize that vitamin D3 deficiency could play a significant role in women's health disparities. Vitamin D3 has diverse immunomodulatory functions, however its role in women's health disparities is not clear. The aim of this study is to investigate the role of vitamin D3 in modulation of innate immunity and women's health disparities. We examined the effect of vitamin D3 on peripheral blood mononuclear cells isolated from AA and CS women following stimulation with lipopolysaccharide (LPS). Our results provide evidence that vitamin D3 influences AA and CS monocyte NFkB dependent signaling and significantly modulates expression of complement inhibitor DAF and other anti-inflammatory and pro-inflammatory molecules with a role in infection and inflammation. These results suggest, that vitamin D3 plays important roles in the progression of inflammation and infections. The role of vitamin D3 in host protection against inflammation and infections in women's health disparities will be discussed. Further clinical studies are needed to confirm the potential beneficial therapeutic effects of vitamin D3 in prevention of recurrent inflammation and infection and eradication of women's health disparities.

Speaker Biography:

Dr. Stella Nowicki was born and raised in Poland, where she graduated from the Medical University of Gdansk in 1983. She quickly fell in love with the unknown, and decoding the secrets of science. She began her successful and exciting career in research with the first of her 3 post doctoral fellowships, which she completed in Oral Biology at Helsinki University, followed by postdoctoral fellowships in molecular microbiology and human immunology at the Baylor College of Medicine in Houston Texas, and later became a Tenured Professor at Meharry Medical College in Nashville, TN. Professor Stella Nowicki's versicolor of expertise has lead to an extremely diverse and fruitful career in clinical translational research with focuses on topics such as Alzheimer Disease prevention, Neisseria gonorrhea, Preterm Labor and Prevention, and a multitude of topics relating to Vitamin D3. Currently, along with her husband Prof. Bogdan Nowicki, she continues her research at their newly opened non-profit, The Nowicki Institute for Women's Health Research. Dr. Nowicki has received multiple NIH rewards totaling in the Millions of dollars in order to fund her research, leading to multiple patents, and over 200 scientific publications, and being recognized by numerous organizations, including the Polish American Medical Society(PAMS), for her significant contributions to science and medicine as a whole. She currently resides in Nashville, TN, where she devotes herself as a loving and wonderful wife and mother, to her husband, 3 children and one granddaughter. In her free time she often works on her internationally recognized poetry, which can be found published in multiple books, most recently her own - Confidance A collection of Poems.

Session III – STEM to STEAM: Underrepresentation of Females in Scientific Study

Chair: Ruth Church, Psychology, NEIU **1:45-3:00 pm**

- **1:45-2:15 pm – Hannah Valdiviejas, Theodora Koumoutsakis, Andy Mistak, Amena Khan and Ruth Church, Psychology, NEIU**
  Closing the Gender Gap in Math Achievement: The Role Gesture Plays in Education for Girls
- **2:15-2:45 pm – Katherine Peterson, Music, NEIU**
  Traditional versus Functional VRPs: Comparing Strategies and results of Amplitude, Frequency, and Egg Waveform in Emerging Artists (sopranos)

Amena Khan
Psychology, NEIU

Theodora Koumoutsakis
School of Social Services Administration, University of Chicago

Andrew Mistak
Developmental Sciences, University of Iowa

Hannah Valdiviejas
Psychology, NEIU

R.B. Church, PhD
Psychology, NEIU

Closing the Gender Gap in Math Achievement: The Role Gesture Plays in Math Education for Girls

In the US there is an alarming underrepresentation of women in STEM careers. Research suggests that a potential reason for this disparity is the difference between males and females in spatial reasoning contributing to females' feelings of inferiority when it comes to succeeding in math and science. Examining a foundational math concept learned in elementary school, our research shows that gesture is particularly beneficial for girls' math learning such that girl's showed significantly more learning of math than boys when they saw a combination of speech and gesture in instruction. This suggests that gesture included with speech instruction of math maybe be a spatial scaffold for females essentially closing the gender gap in math achievement.

Katherine Petersen, DMA
Music Department, NEIU

Traditional versus Functional VRPs: Comparing Strategies and results of Amplitude, Frequency, and Egg Waveform in Emerging Artists (sopranos)

This study quantifies the different strategies used by 5 sopranos to navigate tasks of varying difficulty. The PentaxMedical Phonatory Aerodynamic System was used to measure frequency, amplitude, airflow, and electroglottography (EGG) throughout the singers' entire ranges. This study incorporates the use of a Functional VRP for which measurements were only taken from instances in which sopranos were able to crescendo from their lowest amplitudes and decrescendo from their greatest amplitudes on the same series of tones throughout their ranges. The use of a FVRP ensures that singers are employing their most consistent and operative tonal production. Unlike similar studies, the present paper is integral to the canon of literature as it includes detailed measurements of airflow and EGG in the lower frequency range that will lead to a greater understanding of the female Primo Passaggio. Most of the equipment used in voice research is designed by men and used in studies concerning the male voice. Acoustically, the male singing voice reacts considerably different than the female voice. This study including only female singers begins to address the paucity of research concerning the female voice and looks closely at the strategies they use when approaching operatic singing techniques.

Speaker Biography:

Katherine is currently Assistant Professor of Voice at Northeastern Illinois University in Chicago where she teaches Studio Voice and Diction for Singers. She holds a DMA in Voice Performance from Ohio State University where she studied with Scott McCoy. During her time at Ohio State University, Katherine was head of the Swank Voice Lab for Research and Pedagogy and taught several courses including Voice Pedagogy and Advanced Measurement Techniques for Voice. She co-hosted the 2014 NATS Summer Intern Program and the 2015 International Voice Pedagogy Summit. In June Katherine traveled to Toronto, ON to participate in the NATS Summer Intern Program, an intensive training program that seeks to pair expert and recognized master teachers with talented young members of the National Association of Teachers of Singing. In August, she presented research at the International Congress of Voice Teachers in Stockholm, Sweden and she will travel to Toronto in October to present at the Annual Meeting of the Pan American Vocology Association.

Session V: Laboratory Discoveries with Marie Skłodowska Curie **4:00-5:15 pm**

Lab A: Marie Curie and Mathematics, Nabil Kahouadji, Mathematics, NEIU
Lab B: Magic through Chemistry, John Al Bazi, Chair, Chemistry, NEIU
Lab C: Kids Who Stay Curie-ous, Emma Battaglia, Alum, Economics, NEIU

- **Children in primary grades and higher are warmly invited!**

Nabil Kahouadji, PhD
Mathematics, NEIU

Marie Curie and Mathematics

Marie Curie studied not only physics and chemistry at the Université de Paris, but also mathematics. After a brief introduction to Marie Curie's life, discoveries and legacy, children (and adults) of all ages will be given a mathematical "wow' moment using soap. During this hands-on activity, Dr. Nabil Kahouadji, from the NEIU Mathematics Department, will use bubbles to introduce and illustrate a beautiful and complex mathematical object that is easy to understand.

Speaker Biography:

Nabil Kahouadji joined Northeastern Illinois University as an Assistant Professor of Mathematics in the fall of 2016. He was previously a lecturer at Northwestern University, taught classes at the University of Chicago, and was a CRM-ISM Postdoctoral Fellow at McGill University. He received his Doctorate degree in mathematics at the Université Paris Diderot in 2009. His research interests include differential geometry analysis and fluid mechanics. His teaching interests are geometry, probability/statistics, actuarial sciences, optimization, history of mathematics and math education.

Nabil Kahouadji earned both his Bachelor and Master's degrees at the Université Pierre et Marie Curie (2001-2006), at the same place Marie Curie conducted her research and made her famous discoveries in radioactivity. Nabil took physics and chemistry classes at "Amphithéâtre de Physics", which was where Marie Curie gave her lectures. At this time, the "Amphithéâtre" had the same wooden benches and tables that were used at the time by Marie Curie, and despite being small and uncomfortable, professors and students claim that Pierre and Marie Curie's spirits made the room very much conducive to learning! Nabil was also a computer science tutor at the same building, Bâtiment Cuvier, one floor above Marie Curie's physics laboratory. The building was unfortunately renovated and is now renamed the Institut de Physique du Globe de Paris.

John Albazi, PhD
Chemistry, NEIU

The Magic of Chemistry
In Dr. Albazi's Analytical Chemistry Lab, several experiments will be conducted to explore "The Magic of Chemistry". Magic with Colors - Phenolphtaline is colorless in an acidic aqueous solution, but turns pink to red as the solution becomes alkaline. This color change continuous based on the acidity or basicity of the solution. Metals in Flame - Different colors are observed upon burning metals.

John Albazi is a professor of Analytical Chemistry and department chair at Northeastern Illinois University. His research interests are in the areas of analytical and bioanalytical chemistry. He has initiated the Separation Science option in the Chemistry Master's Degree program at Northeastern Illinois University. He has also initiated NEIU Student Research and Creative Activities Symposium and the NEIU Faculty Research and Creative Activities Symposium.

Emma Battaglia
NEIU Alum, Bachelor of Arts in Economics and Education, Teaching Endorsements in Science and Social Science, Former Teacher and Science Enthusiast

Kids Who Stay Curie-ous
Hands-on session for kids of all ages! Come learn and explore Marie Curie's impact and science! The session will include:

- **Experiment to observe a chemical reaction**
  Marie Curie conducted her experiments throughout her life for research and often did not know in advance what the reactions would be. If you are Curie-ous, come be pleasantly surprised to see our secret chemical reaction!
- **Create an Atomic Model**
  Carbon is fourth most abundant element in the universe; we will explore what it is composed of and create a clay model to take home.
- **Explore X-Rays**
  Curie-ous as to how our inner skeleton looks? Come see X-rays and take home an activity to make sun prints.

Session VI: Future of STEM: Living Science from Girl to Workplace

- **5:30 – 6:00 pm: Melissa Simon, Feinberg School of Medicine, Northwestern University**
  Navigating the Professoriate to Impact Health Equity

- **6:00 – 6:30 pm: Nicole Woitowich, Women's Health Research Institute Northwestern University; NEIU Alumna, Biology '11**
  Why SeXX Matters: From Cells to Scientists

Melissa Simon, PhD
Northwestern University

Navigating the professoriate to impact health equity
Dr. Simon will briefly describe her career trajectory and how her passion to promote health equity has shaped her research portfolio.

Speaker Biography:
Melissa Simon is the George H. Gardner Professor of Clinical Gynecology, Vice Chair of Clinical Research in the Department of Obstetrics and Gynecology at Northwestern University Feinberg School of Medicine, a Northwestern Medicine physician, and co-program leader for cancer control and survivorship at the Robert H. Lurie Comprehensive Cancer Center. She leads a diverse portfolio of research and directly impacts local, state, and national level thought and policy regarding inclusion and health equity. Her research creates transdisciplinary partnerships focused on improving vulnerable populations' health and their interface with the health care system. She extends beyond academic institution collaborations and includes immigrant and racially/ethnically diverse communities, minority serving public institutions, local community clinics and hospitals, national academic institutions, and state and national level policy-making bodies. Melissa supports a large group of mentees that span from high school-aged students through junior faculty. She has been recognized with numerous leadership and mentoring awards, including the American Congress of Obstetricians and Gynecologists Mentor of the Year Award and the Institute of Medicine of Chicago 100th Anniversary Centennial Scholar Award. In 2016, she was appointed to the U.S. Preventive Services Task Force (USPSTF), where she serves on a panel of national experts in prevention and evidence-based medicine. Raised in Detroit, Michigan, she completed her bachelor's degree at the University of Chicago, her medical degree at Rush Medical College, her residency at Yale University, and her fellowship in family planning at Northwestern University.

Nicole Woitowich, PhD
Northwestern University

Why SeXX Matters: From Cells to Scientists

Historically, females have been underrepresented in basic and clinical research studies due to the assumption that sex differences did not exist outside of the reproductive system and a protectionist view towards women and their role as mothers. However, we know now that sex impacts the symptoms, severity, prevalence, and age at onset for a variety of diseases and disorders. We will explore how sex-inclusive research practices and the promotion and advancement of women in science will shape the next generation of scientific discoveries and improve the health and well-being of all people.

Speaker Biography:

Dr. Nicole C. Woitowich is the Director of Science Outreach and Education for the Women's Health Research Institute at Northwestern University. She holds a PhD in Biochemistry and Molecular Biology from Rosalind Franklin University of Medicine and Science with a focus on Reproductive Physiology. She dedicates her career to advancing women's health, making science accessible to the public, and supporting the next generation of women in science and medicine. In addition to her current role, she is a member of the Public Outreach Committee for the American Society for Biochemistry and Molecular Biology and the founder of Women in Scientific Discovery or Medicine (WISOM), a Lake county-based organization which promotes the advancement of women and underrepresented groups in STEM.

Keynote Presentation: Sophie Shrand **7:00pm**

Creator and Host of *Science with Sophie*

Science with Sophie: One Woman's Approach to Changing the World

Marie Curie is the only person to win two Nobel prizes in different disciplines… but even this accomplishment was not enough to legitimize women in science. Drawing on parallels of pioneers like Marie Curie, Sophie Shrand relates her journey traversing the troll-studded mountains of being a woman in science and comedy. Hear how and why she created Science With Sophie, enjoy some grade A jokes, and leave inspired, energized, and ready to create change in your sphere of influence. While you're at it, get a sneak peek of Science With Sophie Season One, coming this fall to a YouTube near you.

About Science With Sophie

Science With Sophie is a science comedy series for girls and their everyone. SWS is a fast-paced show that invites viewers to explore science all around them and remember that they are brave, curious, funny, smart scientists every day. Sophie and her cast of wacky characters (all played by Sophie) bring the audience along to have adventures, try experiments, and find science in surprising ways. The show is Sophie's light-hearted solution to the serious problem of inequity in STEM fields and underrepresentation of women in mainstream science media.

YouTube:

- *Science with Sophie: A Science Comedy Show for Girls Sneak Peek*

Speaker Biography:

Sophie Shrand is a science educator, comedian, and actor with degrees in Neuroscience and Theatre from Northeastern University, Boston. She has researched humans and cocaine, held brains in her palm, generated three-story lightning bolts, and worked with a racist red-tailed hawk. She currently develops educational programming at the Museum of Science and Industry, Chicago, teaching 24,000 students per year about the excitement of physics, engineering, medicine, and more. As a performer, she has appeared on stages across Boston and Chicago, including the Second City Training Center's Musical Improv Ensemble Infinite Sundaes. Sophie insists that she can eat an entire bunch of kale in one sitting, but no one has agreed to bear witness. Yet.