Illinois Wesleyan University

From the SelectedWorks of Crystal Boyce

Fall 2014

ReCentering the Humanities, Mellon Grant for “Through the Looking Glass: The Science of Art...or the Art of Science"

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Karen Schmidt, Illinois Wesleyan University
Gabe Spalding, Illinois Wesleyan University

Available at: https://works.bepress.com/crystal_boyce/4/
This program proposes to bring together the disciplines of art, theatre, physics, and chemistry as represented through the works of Argonne scientists and how their discoveries have advanced the humanities.

The Argonne National Laboratory was initially created to carry out work as part of the Manhattan Project, but now carries out projects across the scientific spectrum. In addition to various research agendas, Argonne scientists and engineers help advance science, engineering, and mathematics education through community and college outreach. Argonne experts volunteer their time and talents to share their knowledge on a variety of science, engineering, energy and environmental topics.

Over the years, Argonne scientists have collaborated with researchers in the arts and humanities, using scientific and technological advances to shed new light on “age-old” questions, to see beyond what is visible, and to reach new depths of discovery.

We propose inviting a series of Argonne scientists to campus as part of a symposium highlighting how science informs art, and how art informs science.

**Dr. Volker Rose - Advanced Photon Source and Cultural Heritage**

Dr. Volker Rose’s research focuses on the study of nanoscale materials by means of high-resolution x-ray microscopy techniques. He currently leads a team developing novel x-ray techniques, with the goal of achieving a fundamental understanding of nanoscale structures. Dr. Rose, through his work with Argonne, partnered with the Art Institute of Chicago to unravel a decades-long debate among art scholars about what kind of paint Picasso used to create his masterpieces. The results, published in *Applied Physics A: Materials Science & Processing* in January 2013, add weight to the widely held theory that Picasso used common house paint, rather than traditional artists’ paint. Dr. Rose’s advanced x-ray techniques allowed the researchers to see what art conservators and historians had been unable to see for years, because traditional tools wouldn’t allow them to see deeply enough into the layers of the paint. Dr. Rose’s work was hailed by both the *NY Times* and *National Geographic*; Dr. Francesca Casadio, of the Art Institute of Chicago, views this type of chemical characterization of paints as having a much wider application than just the study of Picasso’s paintings. By studying the chemical composition of art materials, historians can learn about trade movements in ancient times, better determine the time period a piece was created, and even learn about artists themselves.
Additionally, the introduction of the daguerreotype in the 19th century ushered in the era of modern photography, yet until recently preservation efforts weren’t keeping up with the natural corrosion on the silver-plated copper images. Using Argonne’s Advanced Photon Source, which is this hemisphere’s brightest x-ray, Dr. Volker Rose and Edward Vicenzi, a research scientist at the Smithsonian Institution’s Museum Conservation Institute, are analyzing daguerreotypes to help understand image deterioration, to discover ways to preserve the photographs. Beyond that, the analyses have prospects for future applications ranging from the significant problem of corrosion on pipelines to making more effective microelectronics. In addition to future applications, saving these photographs can help historians, preservationists, and collectors study, understand, and appreciate first-hand what life was like in the 19th century.

The Science of Cinema and the Cinema of Science
In addition to a good script, talented director and magnificent actors, making a movie requires engineering and scientific methods in support of cinematography, sound and editing. In turn, a number of techniques initially developed for movie production are now being used in scientific research. Having never taken an acting class, Dr. Marius Stan uses his experiences playing Bogdan Wolynetz, the Romanian car wash owner bamboozled out of his establishment by crystal meth kingpin, to facilitate meaningful conversation on the intersection between science and cinema. In addition to his appearances on Breaking Bad, Dr. Stan is a senior scientist with the Nuclear Engineering Division at Argonne, a senior fellow with the Computation Institute at the University of Chicago, and a senior fellow with the Institute for Science and Engineering at Northwestern University. The goal of his research is to discover or design materials, structures, and device architectures for nuclear energy and energy storage.

Artist or Scientist to be identified by Julia Savich, Student Leader for the lecture series coordinating committee
In addition to inviting Argonne scientists to campus, to speak about how their work contributes to and enhances the arts and humanities, we also propose inviting an additional scientist or artist, as yet unidentified. As a sophomore physics major studying at the boundary of physics and art, Julia Savich, the student leader of the lecture series coordinating committee, will coordinate our efforts to invite a final speaker to campus. Ms. Savich will identify appropriate candidates and extend invitations to join the speaker series. Her responsibilities will include coordinating travel arrangements, campus outreach and marketing, and working with the speaker during their visit. Taking on this leadership role for the committee will be a great developmental opportunity for Ms. Savich, providing experiences which will serve her well in future endeavors.

The proposed schedule - targeted for Fall semester (2014) - reflects a broad outline of possible courses our speakers might address. Without knowing which classes will be available, we believe the speakers will work closely with both physics courses and humanities courses. Dr. Rose’s work with nanoscale materials and Dr. Stan’s work on energy would be appropriate for either an introductory level or upper level physics course. Additionally, Dr. Stan’s dual focus in chemistry provides alternate course options. Dr. Rose’s cultural heritage work will find a natural home in an art history course, while Dr. Stan could work with theatre faculty.
Schedule
Following is a proposed schedule of how each individual would interact with the campus community to provide a lens through which to critically examine how we both preserve and study the arts and humanities.

Fall Semester, 2014

September - Dr. Marius Stan
Thursday - travel day

Friday
- morning visit with science or humanities course
- catered, on-campus lunch with selected group of students and faculty, across the disciplines
- afternoon visit with science or humanities course
- A public, early evening campus convocation focused on his experiences with Breaking Bad and how both science and cinema intertwine
- dinner with selected group of students and faculty, across the disciplines at a local restaurant

Saturday - travel day

October - Dr. Volker Rose
Thursday - travel day

Friday
- morning visit with science or humanities course
- catered, on-campus lunch with selected group of students and faculty, across the disciplines
- afternoon visit with science or humanities course
- A public, early evening campus convocation focused on his cultural heritage work and his work with the Center for Nanoscale Materials
- dinner with selected group of students and faculty, across the disciplines at a local restaurant

Saturday - travel day

November - final speaker (as yet unidentified)
Thursday - travel day

Friday
- 1-2 visits with courses in morning and/or afternoon
- catered, on-campus lunch with selected group of students and faculty, across the disciplines
- A public, early evening campus convocation showcasing work
- dinner with selected group of students and faculty, across the disciplines at a local restaurant

**Saturday - travel day**

**IWU Alumni**

In addition, a number of IWU alumni have been identified as working with both the Advanced Photon Source and the Center for Nanoscale Materials. The User Coordinator at the APS is Jane Andrews (double major in Physics and English), Matt Highland is a staff physicist at the APS, and Seth Darling plays a leading role in educational outreach at Argonne. We propose inviting one alum to accompany both Dr. Rose and Dr. Stan to campus, to lead outreach activities during the lunch and dinners.

**Advertising Plan**

Brochures and announcements via The Ames Library website and blog, *Campus Weekly*, targeted contact with specific faculty and classes or groups, posters commissioned from the Graphics Design courses

**Budget**

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