

## Physics Seminar

Tuesday, 05 May 2015 at 16h00  
(coffee at 15h45)

Campus Limpertsberg  
Room BSC 2.04

Talk by **Mathew Schwartz**

Advanced Institutes for Convergence Technology, Suwon, South Korea

### Research problem finding and solving through Art and Design

Art and Design (A&D) is not often thought as a driving factor for research outside its own discipline. These fields have, however, greatly impacted fields as close as Civil Engineering, and as distant as Computer Science. By acknowledging and understanding the concepts and techniques of A&D itself, seemingly distant fields can be greatly impacted. Beyond the frequently discussed sci-fi novels and movies such as *Minority Report* that impact research post-creation, this talk will address how the non-scientific methods from A&D can lead to research. This method of research is inherently interdisciplinary, and is relatively simple to implement through collaboration.

The tools of the trade are widely accepted as necessary within a single discipline; the nano-scientist knows how to use an electron microscope and the electrical engineer knows how to solder a wire. Arguably, the field that requires the greatest mastery of a specific tool is A&D. Referred to as craftsmanship, the skill of the Painter with a brush or the Sculptor with a knife dictates the ability to perform the work. Through the study of the craft, intrinsic knowledge of the material, tool, and process is learned, building the foundations for creation and innovation. Some schools have embraced the merits of intrinsic knowledge, developing funding programs such as Research Through Making, an initiative to encourage the exploration of research different to the scientific method.

These topics will be addressed through interdisciplinary projects and recent examples where knowledge of a craft has provided opportunities for new directions of research.

*Mathew Schwartz is an Artist and Researcher with a Bachelor of Fine Arts and a Masters Of Science in Architecture with a concentration in Digital Technology from the University of Michigan. His work spans the academic fields from art to engineering. His portfolio of projects includes classical clay sculpture, computer programming, Human-Brain Interfaces, motion capture, and more. While his activities could be categorized as Art, Design, Research, Engineering, or Business, Mathew takes an integrated approach to everything he does, blurring the line between each category. The human body is the common theme of all his work. In art, Mathew has exhibited in Philadelphia, AnnArbor, Chicago, and Seoul. Most recently he was invited to display his work at the Pyeong Chang Biennale for the 2018 Winter Olympics in South Korea. In research, Mathew has published work on computer simulations, human factors, and robotic manufacturing. His knowledge and experience in interdisciplinary work has brought him to South Korea working as a Researcher in the Digital Human Research Center at the Advanced Institutes of Convergence Technology, a research institute jointly run by Seoul National University. His current work involves robotics, art, motion analysis, and a variety of other interdisciplinary projects.*

### Next Colloquia and Seminars

- Wednesday 22 April 2015  
Limpertsberg, 16h00 **Prof. Dr. Heinrich B. Stuhrmann**  
*Neutron scattering from biomolecules - From isotope contrast to spin contrast*
- Wednesday 29 April 2015  
Belval, 16h00 **Gerhard Kahl**  
*Ultrasoft colloidal particles in- and out-of-equilibrium*

- Wednesday 27 May 2015  
Belval, 16h00 **Karin Jakobs**  
*tbc*
- Wednesday 03 Jun 2015  
Limpertsberg, 16h00 **Dr Andrew Wildes**  
*tbc*
- Wednesday 15 July 2015  
Limpertsberg, 16h00 **Prof. Ralf Stannarius**  
*tbc*