

# ***Introduction to Nano-Materials Science and Engineering***

*on the basis of a 30 minutes talk “Introduction to Nano-Materials Science and Engineering: An elective course within an Applied Physics PhD program”*



Also a regular 4 credit course offering, PH 481/581, at Portland State University, Spring Quarters, Tuesdays and Thursdays, 18:40 – 20:30, [web.pdx.edu/~pmoeck/nanoMSE.htm](http://web.pdx.edu/~pmoeck/nanoMSE.htm)

The talk provides an introduction to the field of nano-materials science and engineering by analyzing various definitions. Questions such as ***What is nanotech? Is it new? Is it dangerous?*** are answered. Nanotech is then classified as either incremental, evolutionary, or radical. The approach of the Oregon Nanoscience and Microtechnologies Institute is briefly mentioned and identified as incremental/evolutionary.

The nano-materials science and –engineering tetrahedron is introduced as a visual representation of the whole field. If generally accepted as paradigm (i.e. “thought pattern”) capable of representing this whole field, there are no special societal and ethical considerations of nanotech to be worried about. This is illustrated by retelling the “Magic Nano Story” of 2006.

-----

Dr. rer. nat. Peter Moeck has been at Portland State since 2002 and is a tenured Associate Professor of Physics. He has been teaching courses on Modern Physics, Thermodynamics and Statistical Physics, and Introduction to (Nano-)Materials Science and Engineering.

By education Peter is a crystallographer/materials scientist. He held appointments at Humboldt University Berlin, Technical University Berlin, Durham University, Imperial College London, Oxford University, and the University of Illinois at Chicago. His current research interests include electron crystallography and microscopy. He serves as a consultant to the Commission on Electron Crystallography of the International Union of Crystallography and also represents the Microscopy Society of America at the US National Committee for Crystallography. Last but not least, Peter serves on the advisory board of the international materials science journal “*Crystal Research and Technology*”.