Einladung des Instituts für Elektronische Sensorsysteme
zum **Gastvortrag** am **22.09.2017** um **13:00 Uhr**
im Hörsaal i4, Inffeldgasse 25D/EG, 8010 Graz

Nanoparticles: From Pollution to Energy Applications

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Abstract:

- Nanoparticles have existed in the natural environment since fires first burned. While historically particles in the gas phase (aerosols) were studied because of their impact as pollution, there is an increasing interest in harnessing gas-phase production of particles for beneficial purposes.
- This seminar will demonstrate how gas-phase particle sensing techniques give insight into the nature of emissions and reveal the potential for nanoparticle synthesis approaches to transform how energetic materials are produced. Our group has sought to characterize transportation emissions, with an emphasis on aerosols, through a series of initiatives spanning from gas turbine exhaust to train and hybrid natural gas/diesel engines.
- The application of aerosol science to engineered materials will be discussed in the context of large-scale carbon nanotube (CNT) manufacturing. Individual CNTs have thermal conductivities greater than any known bulk material; specific electrical conductivity twice that of copper; and the highest ultimate tensile strength ever measured. Bulk CNTs offer extremely useful functional material properties via their strength, electrical and thermal conductivity, and could revolutionize a number of applications – if they could only be produced in large quantities
- Results from the last five years will be discussed in terms of large-scale CNT manufacturing and pathways forward for CNT prototype development and deployment will be detailed as a part of the Advanced Nanotube Application and Manufacturing (ANAM) Initiative.

Biography:

Dr Adam Boies is a Reader in the Energy, Fluid Mechanics and Turbomachinery Engineering Division at the University of Cambridge, Director of the Advanced Nanotube Application and Manufacturing (ANAM) Initiative and Research Director at Catalytic Instrument, GmbH. His research focuses on characterizing the evolution, dynamics and impacts of gas-phase nanoparticles and gaseous pollutants. The applications of his research extend to air quality, transportation emissions and engineered nanoparticles for energy applications.