We are delighted to invite you to an upcoming seminar, part of the School of Physics Seminar Series:

Date: Thursday, 27th March

Time: 12:00 – 1:00 PM

Room: N222

Title: Acoustic multilayer characterization for quantitative condition monitoring of hip prostheses.

Abstract:

Ultrasound is the second most used diagnostic medical imaging technology. Compared to X-ray and magnetic resonance imaging is has plenty advantages ranging from low cost, high availability to the lack of ionizing radiation. However, it is surprising that up to now only sound amplitudes are evaluated. Ultrasound Doppler examination is one of the few exceptions to this. And this example nicely shows how much impact a refined data analysis can provide. By the use of hip prostheses losing as an medial application it is shown that quite some more information can be extracted out of ultrasound, if not only amplitudes, but also phases and thereby frequencies are evaluated. It is shown that prostheses loosing down to a tenth of the ultrasonic wavelength, i.e. to 100µm can be achieved. The implications out of this and the future development to a new medical tool will be outlined at the end.

Speaker Bio:

Klaus Stefan Drese heads the Institute of Sensor and Actuator Technology (ISAT), University of Applied Sciences Coburg since 2016. He also heads the research focus "Sensors and Analytics" and is part of the "Analytics4Health" doctoral centre. He studied physics at the Julius Maximilian University in Wuerzburg and at the State University of New York at Stony Brook. He received his PhD in theoretical physics in the area of time-dependent quantum mechanics at the Phillips University in Marburg. He joined the simulation group of IMM in 1998, became head of the Fluidics and Simulation Department in early 2004 and was Scientific Director from 2004 to 2016. His main research topics are microfluidics, sensors, simulation and surface acoustic wave with applications ranging from industrial sensors to medical point of care testing.

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