

Professor Anja Boisen

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Abstract

'Sensors Based on Miniature Bridges, Diving Boards and Lids'

Small diving boards, bridges and lids can be used as sensitive and label free sensors. Basically, a biochemical reaction at the surface of the mechanical structure can be monitored as a bending, due to a change in the surface stress. Furthermore, highly sensitive mass detection can be achieved by using resonating structures. We have developed a variety of mechanical sensors with integrated read-out, which hold promises as fast and cheap 'point of care' devices as well as interesting research tools. We will present examples of our recent development in the field including results on so called autonomous sensors for applications in process control, diagnostics and potentially controlled drug release. The sensor principles have a wide range of applications in real time local monitoring of chemical and biological interactions as well as in the detection of specific DNA sequences, proteins and particles.

Speaker Biography

Professor Anja Boisen



Anja Boisen is professor and head of the Nano Systems Engineering section at the department of Micro and Nanotechnology at the Technical University of Denmark. She has a thorough knowledge on micromechanics and nanotechnology and has more than 10 years experience in microfabrication and cantilever-based sensing. Anja is head of the Nanoprobes research group, which focuses on the development and application of micro and nano mechanical sensors for use in diagnostics, drug delivery, food monitoring and explosives detection. Anja's research group has pioneered the work on cantilever-based sensors with integrated read-out and was among the first to use polymer as device material.

Anja is cofounder of the company Cantion A/S, which was established in 2001. She has chaired several conferences and workshops – for example the international conference on Micro and Nano Engineering (MNE) in Copenhagen, September 2007. Anja is a member of the Danish research council for Technology and Production and is a member of the Danish Academy of the Technical Sciences. In January 2008 she was awarded the largest research prize in Denmark, the so-called Villum Kann Rasmussen award, for her pioneering research in nanomechanical sensors.