Graz Advanced School of Science
PHYSICS COLLOQUIUM OF THE UNIVERSITY OF GRAZ AND
THE GRAZ UNIVERSITY OF TECHNOLOGY

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Porous silicon: A versatile material for microelectronic devices and energy applications

Abstract:

Historically, electronics was the first discipline that exploited the properties of porous silicon (PSi) in the 1970's. Two decades later, a huge development of the studies about PSi has been observed since an efficient photoluminescence of this material was discovered. During this fruitful period, microelectronic devices also benefited from the progresses made in the domain of semiconductor electrochemical etching and from the comprehension of the unique properties of PSi. In particular, it was found that radio-frequency (RF) devices can took advantages of the isolating properties of PSi. Indeed, highly resistive substrates are generally required to reduce eddy currents and capacitive couplings and then, to get high performance passive devices. The insulating properties of PSi combined with the ability to locate highly resistive areas makes this material promising in terms of development of monolithic insulator/semiconductor substrates. In this presentation, we will present the recent advances that have been performed in GREMAN in the field of RF devices that integrate PSi. In addition, we will describe the way PSi can be used as an insulating material in other devices such as power AC Switches. PSi can also be of great interest for many other applications that require a silicon substrate such as energy micro-sources. Then, we will show in details that porous silicon could also be useful in order to improve Li battery anodes or fuel cells performances.

Date:	Thursday 21 June 2018, 17:00 16:30 meet the speaker tea, Library of Experimental Physics – 1st floor, room 122
Location:	Lecture Hall 05.01, Universitätsplatz 5, University of Graz
Host:	Dr. Petra Granitzer – Institute of Physics – Experimental Physics

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