

PRESENTER INFORMATION



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BIOGRAPHICAL SKETCH

Jarno Salonen is Professor of Pharmaceutical Physics at the Department of Physics and Astronomy in University of Turku, Finland. He is head of the department and also head of Industrial Physics Laboratory.

He has studied porous silicon since 1994. He graduated with a PhD in Physics in 1999 at the University of Turku. His research interests include chemical stabilization of porous silicon, sensor and optical applications, and since 2004 also drug delivery and theranostic applications. He is author of more than 270 scientific publications with over 14 000 citation (h-index = 74, Google Scholar).

TITLE: Controlling the chemical stability and functionalization of porous silicon for drug delivery applications

ABSTRACT

Porous silicon offers excellent platform to develop multifunctional drug delivery vehicles with versatile theranostic properties, among many other potential applications. It is biocompatible and more importantly bioresorbable. Pore sizes, porosity, specific surface area and morphology can be tuned during the electrochemical anodization, and even after that. It can be produced in many different sizes and forms from nanoparticles < 100 nm up to macroscopic free-standing films, or simply a thin layer on the Si substrate.

Unfortunately, these advantageous properties compared to many other mesoporous materials are not enough in order to obtain commercial (or clinically approved) applications. In my talk, I will discuss about thermal carbonization of porous silicon considering different types of applications and how thermally carbonized surfaces can be further functionalized depending on the desired application. This is very critical issue in drug delivery where you need chemical stability and biodegradation.