

Porous silicon as a biomaterial for in vivo imaging and drug delivery

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This presentation will discuss the synthesis and properties of a biodegradable nanomaterial based on electrochemically prepared porous silicon. The semiconducting nature of this material leads to photoluminescence, energy transfer, and photonic properties that are not readily obtained in other porous host materials. When combined with its high capacity as a host matrix, low toxicity, tunable pore dimensions, and unique surface chemistry, porous silicon provides some interesting opportunities for biomaterials applications. The use of the magnetic, photoluminescence, and reflective optical characteristics of this material for in-vitro and in-vivo sensing and imaging will be highlighted.

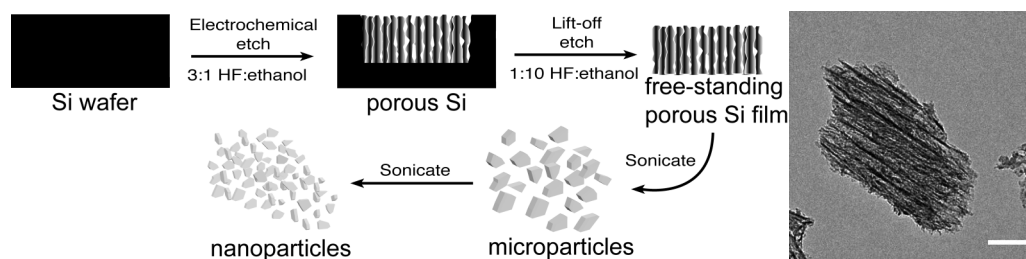


Figure 1. Preparation of micron- and nanometer-size porous Si particles by ultrasonic fracture. At the right is a porous Si nanoparticle containing iron oxide nanoparticle inclusions. Scale bar is 50 nm.