**École polytechnique fédérale de Lausanne (EPFL) Valais/Wallis**
Institute of Chemical Sciences and Engineering (ISIC)
Basic Science Faculty (SB)
Energypolis, Rue de l'Industrie 17, CH-1950 Sion, Switzerland

# ENERGYPOLIS SEMINAR

**03.12.2015, 16:00 - 17:00, ENERGYPOLIS Sion, 4th floor, Seminar Room**

## Zeolite-Templated Carbons as Energy Materials

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Carbon materials carrying the inverse structure of zeolites are an exciting class of recently discovered materials with exceptional promise in numerous applications, especially for energy storage and conversion processes. So-called zeolite-templated carbons (ZTCs), which exist in three topological variants (**FAU**-, **EMT**-, and ***BEA**-ZTC), comprise the highest surface area carbon materials known and therefore exhibit among the highest reported physisorptive (especially $H_2$ and $CH_4$) energy storage capacities and pure electrochemical capacitance in this class. Facile control of structural and chemical composition allows the tuning of their properties toward these and other physisorptive and electrochemical applications, such as in gas separations and heterogeneous catalysis. In this presentation I will review the current state of research of ZTCs as energy materials, evaluate the synthetic methods to prepare high template-fidelity zeolite replicates, and shed insight on numerous promising future directions in ZTC design and applications.

**Nicholas P. Stadie**

Nick was born in 1985 in Calgary, Alberta, Canada. He received a BS in chemistry from Arizona State University in Tempe, Arizona, USA in 2007. He received a MS and PhD in materials science at Caltech in Pasadena, California, USA with Prof. Brent Fultz and Dr. Channing Ahn, focusing on synthesis and characterization of porous materials for hydrogen and methane storage. In 2013, he joined the Hydrogen & Energy group at Empa in Dübendorf, Switzerland as a postdoc, developing new techniques for characterizing the decomposition reactions of (porous) borohydrides. He is now serving as a research fellow in the Kovalenko group at ETH Zürich, focusing on new energy storage applications for porous templated carbons.