



UNIVERSITÀ  
DI TRENTO

Dipartimento di  
Ingegneria Industriale

DII

Seminar

## Production and Characterization of SiOC Ambi/Aerogels

September 26 2023, h. 2:30 PM

Seminar room, Polo Ferrari 2, Via Sommarive 9, Trento

**Speaker: Cekdar Vakif Ahmetoglu, Izmir Institute of Technology (Turkey)**

Porous materials have been of great interest in various technological processes such as biomedical, catalysis, filtration (gases, liquids including molten metals), and thermal management. Porous and high surface area silicon oxycarbide (SiOC) aero/ambigels were synthesized using economic and commercially available siloxane resin, polymethylsilsesquioxane. First, the preceramic gels were obtained via cross-linking in an autoclave, followed by a drying conducted in ambient pressure (ambigels) or under CO<sub>2</sub> supercritical conditions (aerogels). Finally, pyrolysis at different temperatures (600-800-1000 °C) resulted in the formation of SiOC aero/ambigels. The highly porous components were characterized by SEM, TGA, XRD, FTIR, and N<sub>2</sub>-sorption analysis. The total porosity of the samples always remained around 80%, the specific surface area values were between 274-917 m<sup>2</sup>/g, and the pore volume of 1.45-4.99 cm<sup>3</sup>/g, depending on the processing conditions.

### Info

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