

Participation Report

International Summer School on Computational Design for Additive Manufacturing:
Exploring Field-Driven Design for Advanced Ceramics

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I participated in the International Summer School titled “Computational Design for Additive Manufacturing: Exploring Field-Driven Design for Advanced Ceramics”. The program took place at SUPSI in Lugano, Switzerland, from July 13 to July 17, 2026. It was an intensive 32-hour training course focusing on computational design, topology optimization, and advanced ceramic 3D printing.

During the week, we had lectures and practical workshops about implicit modeling, lattice structures, and Triply Periodic Minimal Surfaces (TPMS). We worked with industrial software tools such as nTop, Spherenet, and ToffeeX to create field-driven geometries and learn about multiphysics simulations.

We also visited the Hybrid Materials Laboratory at SUPSI. During the lab tour, we saw different 3D printers and equipment for ceramic processing. They showed us ceramic stereolithography (Admatec Admaflex 130), binder jetting (ExOne Innovent+), laser powder bed fusion (EOS Formiga), and Fused Filament Fabrication (BCN3D Epsilon) machines. We also saw high-temperature debinding and sintering furnaces used to convert printed preforms into dense ceramic parts.

This summer school was very relevant to my PhD research in additive manufacturing. My main work focuses on slicing algorithms, automated toolpath generation, and custom geometry processing. Understanding implicit design and seeing the physical capabilities of different 3D printers gives me good ideas to improve my slicing scripts and optimize non-planar toolpaths.

In conclusion, attending this summer school was a very valuable experience. The knowledge about computational design and practical lab insights will directly support my PhD research and future paper writing.

This is to certify that
Hamidreza Souzangarzadeh

has successfully completed the
International Summer School
Computational Design for Additive Manufacturing:
Exploring Field-Driven Design for Advanced Ceramics

Lugano, 13 - 17 July, 2026

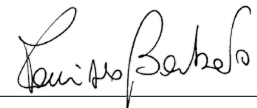
The school addressed computational design, topology optimization, additive manufacturing, and multiphysics simulations applied to cellular structures and high-performance components. The program aimed to foster dialogue between research and advanced applications, by including contributions and case studies from international academic and industrial partners, such as nTop, Spherene, Puntozero, Yamaji Design, ToffeeX, and the Swiss company EngiCer SA, with support of the Italy Chapter of the American Ceramic Society and the JECS Trust of the European Ceramic Society. The program comprised a total of 32 hours.



Dr. Marco Pelanconi,
Instructor



Prof. Alberto Ortona,
Head of Hybrid Materials Laboratory



Prof. Maurizio C. Barbato,
Director of MEMTi