

## Workshop

# Inorganic particles as multifunctional objects: synthesis, processing and examples of upscaling from lab to pilot

**Fraunhofer Institute for Silicate Research ISC**

**April 29<sup>th</sup>, 2021**

To meet the ever-increasing demands on materials, researchers have to demonstrate diversified functionalities of individual components such as particle-based fillers. Multifunctionality can be generated via the targeted assembly of individual particles into complex structural units. Due to the new arrangement of the basic building blocks, these so-called supraparticles have the potential for new and extended functionalities/properties. In this workshop, the scientific and technological aspects of the synthesis, upscaling and application of these supraparticles will be discussed. The workshop arises from the EIT KIC Raw Materials Up-scaling project Safer Reduction of ZnO amount in Rubber Vulcanization Process – SAFE-VULCA and it is addressed to PhD students and academic and industrial researchers interested in the field of complex materials.

### Agenda:

09:00 – 09:25	Welcome and Introduction (Dr. Claudia Stauch, Fraunhofer ISC)
09:25 – 10:15	Supraparticles for sustainability - a fundamental overview (Prof. Karl Mandel, FAU Erlangen & Fraunhofer ISC)
10:15 – 10:45	Upscaling of complex particles (Dr. Claudia Stauch, Fraunhofer ISC)
10:45 – 11:00	Coffee Break
11:00 – 11:30	Nanopigmented PVB and polyolefin films for heat management in buildings and photovoltaics (Prof. Pascal Buskens, TNO)
11:30 – 12:00	Some new approaches towards better rubber composites for tire treads (Prof. Mario Beiner, Fraunhofer IMWS)
12:00 – 13:00	Lunch break
13:00 – 13:30	Overview of applications of colloidal silica (Dr. Cagri Üzüüm, Grace GmbH)
13:30 – 14:15	Scaling up ZnO/SiO <sub>2</sub> production preserving its reactivity as curing activator to obtain highly performant rubber materials (Prof. Roberto Scotti, University of Milano-Bicocca)
14:15 – 14:30	Final Discussion