

## VELOCITY MAP IMAGING OF TEOS AND DEPOSITION ANALYSIS OF FEBID PROCESS IN TEOS

FELIX HERMANN, *Carl Zeiss, Rossdorf, Germany*; NIGEL MASON, MARIA PINTEA, *School of Physical Sciences, University of Kent, Canterbury, United Kingdom*.

Called “the miracle material”(D.N. Payne, SPIE 2020), silica is the one of the new generation of materials used for optical fiber, as nanoparticles for medical purposes in cancer treatment and for mask repair and production, “the holy grail” of the electronics industry. We have used  $\text{Si}(\text{OEt})_4$  or TEOS to deposit silica structure on a surface using the method of Focused Electron Beam Induced Deposition (FEBID), whilst also undertaking a thorough analysis of TEOS electron induced fragmentation using velocity map imaging. Experiments are combined with theoretical calculations of electron interactions with TEOS and models of the FEBID process. The electron beam energy range we used was 0 - 25eV. The present research is part of an ITN wider research project, ELENA ([www.elena.hi.is](http://www.elena.hi.is)) exploring the dynamics of FEBID and Extreme Ultraviolet Lithography and their development as a methodology for building nanostructures. ELENA is an Initial Training Network funded by the European Union Horizon 2020 program Grant number 722149.