

Postdoctoral Position for Finite-Element-Simulation of Laser-Induced Nanostructure Formation

Saarland University, Department of Biophotonics and Laser Technology, Saarbrücken, Germany

Job Description

A highly qualified research fellow is sought to simulate generation and dynamics of laser-induced electron-hole micro-plasmas on material surfaces and in thin films as well as resulting physical processes such as ablation and, ultimately, nanostructure formation.

The work aims at developing a simulation procedure that is consistent with experiments and allows for optimization of production parameters. The successful candidate will implement all relevant processes such as light propagation, carrier generation and dynamics, energy transfer to the lattice system, and phase transformations using the finite-element software COMSOL Multiphysics in combination with additional programs. Adequate treatment of coupled partial differential equations, time-stepping, boundary conditions, and appropriate meshing are among the key issues.

*The position is available for a term of six months starting on **December 1, 2014**.*

Job Requirements

PhD in Physics, Electrical Engineering, Computer/Computational Science, Applied Mathematics, or related engineering or science discipline.

In-depth knowledge of the fundamentals of the finite-element-method (FEM) and experience in the application of the COMSOL Multiphysics software package is absolutely essential. The applicant must be familiar with solving sets of partial differential equations at full coupling using the RF- and Wave Optics modules. A profound knowledge in the fields of optics and solid state physics is required.

Interested applicants should send a CV with a cover letter, names of at least three references, and a summary of recent work including a list of publications. All applications should be submitted electronically via one or more PDF documents to:

Dr. Martin Straub, Saarland University, Dept. Biophotonics & Laser Technology, Campus Am Markt, Zeile 5, D-66125 Saarbrücken, Germany

Email: m.straub@blt.uni-saarland.de, CC: k.koenig@blt.uni-saarland.de

Employer Description

Saarland University is one of the major universities in Germany with 18.500 students including 16% international students. It was founded in 1948 and is close to France (by train less than two hours to Paris) and Luxembourg. The Department of Biophotonics and Laser Technology is part of the Faculty of Physics and Mechatronics. Its research concentrates on ultrafast laser applications in the fields of material processing and biology. For more information, please, see <http://www.blt.uni-saarland.de>.