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Multiscale Modelling of Laser-Induced Phenomena on Solids

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Deadline for manuscript submissions:
closed (31 August 2021)

Message from the Guest Editors

Dear Colleagues,

In laser-based processing of materials that includes surface nano- and microstructuring, high-precision cutting and drilling, nanoparticle and nanostructure formation, among many others, multiscale theoretical investigations are of paramount importance for providing a systematic and controllable means of linking the observed surface modification with the applied conditions. This Special Issue will address advances in multiscale modeling approaches. The emphasis of this issue is on the elucidation of the role of laser parameters and how they influence physical processes on various time scales (electronic, atomistic, mesoscopic, continuum, multiscale). The objective is firstly to advance our understanding on these mechanisms and secondly to allow an accurate prediction of surface/volume morphological changes. Articles and reviews dealing with first principle analysis, atomistic simulations, molecular dynamics, Monte Carlo simulations, investigation of dynamics of out-of-equilibrium carriers, relaxation processes, fluid dynamics, plastic effects, ablation, and machine learning-based approaches are all very welcome.

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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