Institute of Thermomechanics Seminar
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Lecture No. 55

Czech Society for Mechanics
and Institute of Thermomechanics, CAS

invite you to a lecture and discussion within
the lecture series **Institute of Thermomechanics Seminar**

New role of silicon thin films in advanced photovoltaics

given by

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Currently photovoltaics is becoming an established industrial field with the global installed capacity over 400 GWp, with perspective of reaching the terawatt installed capacity within the following decade. The field is dominated by silicon wafer based cells which reached the unforseen low system prices. The advantages of silicon thin film based photovoltaics of lower consumption of semiconductors and shorter energy payback time was not sufficient to overcome the disadvantage of lower efficiencies (record is 14 % for Si thin films is about half of the best Si wafer based cell). The most recent record efficiencies are due to the combination of the two technologies: the interdigitated back contacted silicon heterojunction based cells reached 26.7 % efficiency by combining high quality wafer with very thin silicon films for preparing passivating selective contacts. In another parallel development silicon thin films make part of silicon nanowire based solar cells which unite the concept of geometrically thin – optically thick films with simple manufacturing. In our group we have contributed to the field by developing optical profilometry for nanometer thin films based on Raman spectroscopy, microscopic methods for characterizing the local properties of the silicon nanostructures or for exploring photovoltaic materials and we explore new ways of junction engineering by inserting 2D materials or self-assembled dipolar molecule monolayers.

The lecture will be held on Thursday, November 7, 2018 at 10:00 in the building of the Institute of Thermomechanics (lecture room B), Dolejškova 5, 182 00 Prague 8

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