SCDT – FlexE Centre Webinar Series

The webinars aim to bring together researchers in Flexible Electronics and allied areas from across India (and other countries) on a single platform to promote professional interaction.

Webinar by

Dr. Sushobhan Avasthi
Centre for Nano Science and Engineering,
Indian Institute of Science, Bangalore

on
"Perovskite and organic thin-film solar cells on steel"

Date: 14th June, 2022
Time: 7:30 PM to 8:30 PM

Visit www.iitk.ac.in/scdt/webinars.html to access the zoom link to join the webinar.

The event will be chaired by
Dr. Sandeep Kumar
NTPC School of Business, Noida, UP

Abstract of the Webinar

Steel is an ideal substrate for flexible solar cells for many applications. It is robust, stable and low-cost. It is also a common structural material used in cars, buildings, and huts. However, solar cells on steel are rarely efficient, with the state of the art efficiency of only 8-12%. The iron in steel can diffuse into the semiconductor during high-temperature processes. Steel is rough at the micro scale. It is also opaque, so light must enter from the opposite side. In my talk I will discuss the various ways in which we are trying to solve this complex problem. I will talk about non-contaminating metal-nitride diffusion barriers that prevent movement of iron atoms. I will discuss the importance of roughness and what we can do to solve it. I will also present new recipes of ALD-TiO_2 that can be deposited at lower temperatures. Finally, I will present the challenge of integrating a transparent electrode on top of perovskite/steel stack.

Information about the speaker

Dr. Sushobhan Avasthi is currently an Associate Professor at the Centre for Nano Science and Engineering at the IISc Bangalore, which he joined in Feb. 2014. Prior to this, he did his PhD (2011) at Princeton University followed by a postdoc (12.2011-04.2014) at the Princeton Institute for the Science and Technology of Materials (PRISM). H completed his B.Tech. in the Electrical Engineering Department at the IIT Kanpur bagging the Motorola Student of the Year award for outstanding performance among Electrical Engineering and Computer Science & Engineering Students.

His current research areas are in high-efficiency perovskite thin-film solar cells; forming oxide/silicon heterojunction devices; functional oxide devices in photovoltaic, sensing and memory applications; and integration of solar cells on novel substrates such as steel.

Dr. Avasthi has numerous accomplishments in his research and academic career. Among them is the fact that he co-founder of Surya Tech LLC, USA, a startup to commercialize the silicon heterojunction solar cell developed during his doctoral work. The seed funding for this came from a prize at the 6th Princeton Innovation Forum. At IISc he has received the Young Faculty Research Fellowship (2016), INAE Young Engineer Award and made an INAE Young Associate (2018) among others accolades.

For more information
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