



ডায়মন্ড হারবার মহিলা বিশ্ববিদ্যালয় Diamond Harbour Women's University

Department of Physics

Organizing an International Webinar on 20th November 2020 in

Perovskites as an efficient optoelectronic material

Chief Patron

Prof. Anuradha Mukhopadhyay
Hon'ble Vice Chancellor

Patron

Dr. Md. Sayeedur Rahman
Registrar

Organizing Chairman

Prof. Sujit Mandal
Dean Faculty of Science

Date: 20th November 2020

Time: 2.00pm IST

All are cordially invited



Our Eminent Speakers

Dr. Johann BOUCLÉ,
*Associate Professor –
HDR, Head of ELITE
group, Université de
Limoges/CNRS, France*



Dr. Saikat Bhaumik,
*Assistant Professor
ICT-IOC
Bhubaneswar, India*

Convenor

Dr. Sudip Kumar Saha
*Assistant Professor,
Department of Physics*

Organizing Committee

Dr. Anindya Ghose-Choudhury
Dr. Tapas Kr. Ghosh, Dr. Sujoy Poddar,
Dr. Sudip Garai, Dr. Abu Jahid AKthar

Webinar link:

<https://meet.google.com/ubp-vqjq-vkp>

Registration form:

<https://forms.gle/TC3LrWqP6UvjeJSF9>



The advent of halide perovskites: towards efficient and low-cost optoelectronic devices

Dr. Johann Bouclé

XLIM Research Institute, University of Limoges / CNRS, France

Abstract.

Halide perovskites, although known since the late 70s, have emerged as promising functional materials for optoelectronic devices since less than 10 years, enabling for example a real breakthrough in the field of photovoltaic technologies. Since then, rapid progress has been made in the understanding of their quite unique electronic properties, and numerous strategies were proposed to tailor their bandgap for particular applications, to improve their stability under ambient conditions, or to reduce their environmental impact and toxicity, associated with the presence of lead in their composition. As a consequence, halide perovskites were successfully integrated into third generation photovoltaic cells or light-emitting devices, as well as in visible or X-ray photodetectors. In this presentation, I will come back to the basics of halide perovskite materials, by illustrating some of their unique properties, and I will describe recent developments made in the field of photovoltaic cells and light-emitting diodes. I will also illustrate these features through some recent achievements made in the Printed Electronics for Telecoms and Energy group of the XLIM Research institute (University of Limoges / CNRS).



Short biography

Dr Johann Bouclé is currently Associate Professor at the XLIM Research Institute (CNRS UMR 7252 / University of Limoges, France), and head of the “Printed Electronics for Telecoms and Energy” group. He obtained a PhD degree in Physics in 2004 on polymer/nanocrystal composites for nonlinear optics (University of Le Mans, France), before working as postdoctoral fellow both at Imperial College London and at the University of Cambridge (UK), to develop novel hybrid solar cells based on polymers and metal oxide nanostructures. Since its nomination at XLIM, he developed several research axes devoted to hybrid optoelectronic devices based on organic and inorganic semiconductors. More recently, he focuses on interface engineering and on organic and hybrid devices for visible light communications.

Contact: johann.boucle@unilim.fr

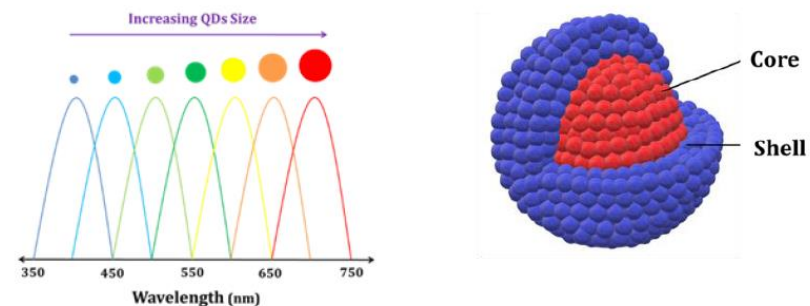
Website: <https://www.xlim.fr/en/research/electronics/rf-elite/elite>



Title: Metal halide perovskite nanocrystals (NCs): their photo-physical properties and various optoelectronic applications

Dr. Saikat Bhaumik, Assistant Professor, Institute of Chemical Technology-IndianOil Odisha Campus, Bhubaneswar, Odisha, India

Abstract: Metal halide perovskite nanocrystals (NCs) have received broad attention for their unique properties, like emission color tunable over entire visible region, high photoluminescence quantum yield (PLQY), narrow full width half maxima (FWHM), low defect states, wider color gamut. Such NCs exhibit multiphoton absorption properties and longer hot carrier relaxation time. With these unique properties, these NCs have wide potential applications in LEDs, solar cells, lasing, bio-imaging, etc. However, the instability of perovskite NCs in ambient atmosphere especially in presence of moisture is one of the major challenges that needs to overcome before their commercial applications. Stability of perovskites can be improved by forming a protective shell material which not only prevents them for further degradation but also generates new materials properties. This core@shell NCs are known to be a unique technique that further improves the crystal structure and photo stability. It has been anticipated that the advantages of these NCs can be eventually realized in various optoelectronic and bio-imaging applications.



Short biography: Dr. Saikat Bhaumik is currently working as an Assistant Professor at Institute of Chemical Technology-IndianOil Odisha Campus, India from the year 2018. He received his Ph.D. degree in Physics from Indian Association for Cultivation of Science (IACS), India on 2014. He has over three years' of postdoctoral research experience from ERI@N, Nanyang Technological University, Singapore. In succession he joined as a prestigious DST-Inspire Faculty position at ARCI, India. His current research interest is focused on synthesis of novel metal halide perovskite materials, their photo-physical studies, and application in LEDs, solar cells. He has published several high-impact research articles in various peer-reviewed journals and filed one US patent.

Contact: s.bhaumik@iocb.ictmumbai.edu.in; saikatron@gmail.com

Website: <https://saikatron.wixsite.com/saikatbhaumik>; http://www.ictmumbai.edu.in/emp_profiledetail.aspx?nDeptID=ciaiiq

Webinar on ***Perovskite an efficient optoelectronic material*** on 20th November 2020
Organized by **Department of Physics Diamond Harbour Women's University**

Organizing Committee

Prof. Anindya Ghose-Choudhury, HOD, Department of Physics DHWU
Dr. Tapas Kr. Ghosh, Associate Professor of Physics DHWU
Dr. Sujoy Poddar, Assistant Professor of Physics DHWU
Dr. Sudip Garai, Assistant Professor of Physics DHWU
Dr. Abu Jahid Akthar Assistant Professor of Physics DHWU
Dr. Sudip Kumar Saha Assistant Professor of Physics DHWU

Program Schedule

Introductory Speech By Prof. Anindya Ghose-Choudhury, HOD Department of Physics 1.30-1.35 pm IST
Inaugural Address by Prof. Anuradha Mukhopadhyay Hon'ble Vice Chancellor DHWU 1.35-1.40 pm IST
Welcome Address by Dr. Md. Sayeedur Rahman Registrar DHWU 1.40-1.45 pm IST
Address by Organizing Chairman Prof. Sujit Mandal Dean Faculty of Science 1.45-1.50 pm IST
1st Lecture By *Dr. Johann Bouclé* title "**The advent of halide perovskites: towards efficient and low-cost optoelectronic devices**" 2.00-4.00 pm IST
2nd Lecture by *Dr. Saikat Bhaumik* "**Metal halide perovskite nanocrystals (NCs): their photo-physical properties and various optoelectronic applications**" 4.00 – 5.00 pm IST
Vote of thanks by Dr. Tapas Kr. Ghosh, Associate Professor of Physics DHWU 5.00-5.05 pm IST