

En collaboration avec la série de colloques du département de physique
In collaboration with the Department of Physics Colloquium Series

Séminaire

Le mardi 3 mars 2020, 14h45
Des rafraîchissements seront servis dès 14h15
Complexe de recherche avancée, pièce 233
Université d'Ottawa, 25, rue Templeton
Le séminaire se déroulera en anglais.

Seminar

Tuesday, March 3, 2020, 2:45 p.m.
Refreshments to be served starting at 2:15 p.m.
Advanced Research Complex, room 233
University of Ottawa, 25 Templeton Street

Integration of low cost III-V photovoltaic and optoelectronic epitaxial structures on silicon **Abderraouf Boucherif, Université de Sherbrooke**

Abstract: Due to their high efficiency, III-V photovoltaic devices are very promising for terrestrial concentrator and space photovoltaics. Wide spread adoption of this technology would require significant improvement in efficiency and major cost reduction. In this talk I will review strategies and recent advances towards achieving these goals by using nanoporous semiconductors, nanocomposites and graphene based virtual substrates.

Bio: Professor Boucherif's research activities at Université de Sherbrooke's 3IT include the synthesis and characterization of new semiconductor nanomaterials for applications in energy and optoelectronics. He obtained his PhD in 2010 at Lyon Institute for Nanotechnology where he demonstrated the first lattice tunable substrate based on Si and SiGe nanomembranes and stress generating porous Si. For this, he received awards twice at high-level international conferences, including the "young scientist award" at the European Material Research Society. He joined Université de Sherbrooke in 2010 as a research associate and more recently as an assistant professor in 2018. Among his important contributions during this period, he created a new class of graphene-coated porous Si nanocomposite with remarkable elastic properties and thermal stability for strain accommodation, required for high quality heteroepitaxial growth. The results of this work were presented as the cover of the Small journal, and received an award at the Canadian Semiconductor Conference in 2018. Moreover, he developed an effective liftoff and transfer process of GaAs/Ge heterostructures, which recovers the Ge substrate for lightweight, flexible and cost-effective solar cells applications. This attracted world leading industrial partners to collaborate on projects of more than \$2M, through the European Space Agency, the Canadian Space Agency and NSERC. Professor Boucherif is the author of a book chapter and more than 30 journal papers and conferences proceedings in the field of semiconductors nanostructures, optoelectronics and substrate engineering.



TOP-SET est un programme de formation FONCER du CRSNG en puissance optoélectronique ayant pour but de façonner une cohorte de personnel hautement qualifié détenant des connaissances approfondies en systèmes optoélectroniques pour rejoindre les rangs d'équipes de recherche et développement.

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