

## WORKSHOP 7

### Applications of Electron-Beam Induced Current (EBIC) Imaging in the SEM and TEM

(click here for talk abstracts and workshop poster)

*Organizers: Fernando Camino, (BNL), Myung-Geun Han (BNL) and Armando Rúa (UPR at Mayagüez)*

*Date and time: Thursday May 16<sup>th</sup> from 9 AM to 12:20 PM USA ET (UTC-5)*

Electron-beam induced current (EBIC) imaging is a powerful technique that enables to achieve structure-property relationships by mapping the electrical response of a sample as a function of the incident electron probe position. Typically, when used in an SEM, EBIC is very useful to map the quality of solar cell devices (e.g. measuring the density of defects) as the beam scans the local beam-induced electron-hole creation cross-section across the sample. In the scanning transmission electron microscope (STEM), secondary electron EBIC (SEEBIC) imaging is applied to study diverse electronic materials, such as the formation of conducting paths in resistive switching devices. Given the CFN's advanced capabilities in EBIC, specifically in its dual-beam SEM/FIB and several TEMs, this workshop aims to facilitate the exchange of information and scientific discussion over recent developments and applications presented by experts in the field, and to encourage the user community to use the EBIC technique for their research. The workshop will also include a remote "hands-on" demonstration of the application of frequency locked-in EBIC in CFN's dual-beam SEM/FIB.

Start Time (ET)	Title	Speaker (Affiliation)
9:00	Workshop Introduction	<a href="#">Dr. Myung-Geun Han (BNL)</a>
9:05	EBIC measurements of thin-film solar cells - insights and limitations	<a href="#">Prof. Daniel Abou-Ras (Helmholtz-Zentrum Berlin)</a>
9:35	Q&A	
9:45	Exploiting secondary electrons in transmission electron microscopy for 3D characterization of nanoparticle morphologies	<a href="#">Prof. Sara Bals (U. of Antwerp)</a>
10:15	Q&A	
10:25	Secondary electron EBIC: from single layers to single atoms	<a href="#">Dr. Ondrej Dyck (Oak Ridge)</a>
10:55	Q&A	
11:05	Applications of STEM EBIC imaging: ferroelectrics	<a href="#">Prof. Chris Regan (UCLA)</a>
11:35	Q&A	
11:45	Frequency locked-in EBIC in the SEM: Hands-on demonstration of setup and measurements	<a href="#">Dr. Fernando Camino (BNL)</a>
12:15	Final remarks	<a href="#">Prof. Armando Rúa (Univ. of Puerto Rico)</a>