Russell Berrie Nanotechnology Institute
Technion - Israel Institute of Technology

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## "Dopants and Charge Carriers in Colloidal Semiconductor Nanocrystals "

**Wednesday,**
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12:00 refreshments
12:30 lecture

**Wang Auditorium**
The Dalia Maydan Building
Faculty of Materials Science and Engineering

RBNI Monthly Seminar Series 2018

TECHNION
Israel Institute of Technology

# Dopants and Charge Carriers in Colloidal Semiconductor Nanocrystals

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*University of Washington, Seattle*

The physical properties of inorganic crystalline materials can be dramatically transformed by controlled introduction of impurities or other defects, without which most semiconductor technologies including transistors, diodes, and solar cells would not be possible. The development of methods for growing high-quality doped inorganic crystals has consequently been a perennial research frontier. This talk will describe some of our group's recent progress in the development of doped semiconductor nanocrystals as new forms of matter at this research frontier. New chemistries for introducing open-shell transition-metal impurity ions or excess free charge carriers into colloidal II-VI semiconductor nanocrystals will be described, and the unique physical properties of these doped nanocrystals will be discussed. Recent projects of interest have involved nanocrystal diffusion doping, magneto-optics, photophysics, and spectroelectrochemistry, all with an emphasis on elucidating the unique electronic structures of these novel materials.