



November 27, 2017

Dear ICS members,

It is my great pleasure to announce that the **2017 ICS Excellent Young Scientist Prize** will be awarded to **Dr. Sharon Ruthstein** of the Department of Chemistry at Bar Ilan University for developing novel electron paramagnetic resonance methods and applying them to study the role of copper in biological systems and the properties of carbon materials.



Dr. Sharon Ruthstein
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Sharon Ruthstein was born in Israel, 1976, gained her B.Sc. in Chemical Engineering at the Technion, *summa cum laude*, and obtained her Ph.D. in 2008 with high honors with Daniella Goldfarb at the Weizmann Institute, using EPR and cryo-TEM to resolve the formation mechanism of silica mesoporous materials, from a homogeneous solution of polymeric micelles into a defined hexagonal/cubic structure. As a postdoc (EMBO fellow) with Sunil Saxena at the University of Pittsburgh, she noticed that many proteins containing metal ions can be studied with paramagnetic metal ions using site-directed spin-labeling methods. Sharon joined the Department of Chemistry at Bar Ilan University in October 2011 and established three labs: a magnetic resonance spectroscopy lab (equipped with three CW/Pulsed EPR spectrometers), a wet biochemistry and molecular biology lab with a culture room, and a ⁶⁴Cu(II) radioactive lab. Her group utilizes various spectroscopic methods together with biochemistry and molecular biology work to resolve cellular metal transfer mechanism *in vitro* and in cells. One such process is the cellular copper transfer mechanism. High and low copper concentration in eukaryotic systems have been linked to various neurological diseases, such as Menkes, Wilson, Alzheimer's, Parkinson's and Prion's. The knowledge gained on each step of the copper cycle in eukaryotic and prokaryotic systems is used to develop new biomarkers and therapeutic agents.

Sharon has demonstrated that the copper cycle in both cell types is controlled by a ligand exchange between two methionine segments or between a methionine and cysteine segments. This mechanism ensures that copper is not freely released into the cellular fluid. In addition, her group has identified critical residues at various proteins that are essential for the proper transfer mechanism between various proteins in the cycle. These results provide significant knowledge on how the intracellular copper concentration may be controlled, which may lead to new therapeutics for neurological disorders. More recently, she has started designing copper-based biomarkers for tumor diagnosis. In the past 6 years since joining BIU, Sharon has published 26 papers and won competitive research grants, including two ISF, Marie Curie, Kamin, Israel-Italy MOST and an ERC-StG grant. Her list of awards includes the Eshkol and Wolf Scholarship, JEOL prize, EMBO and AAUW fellowships and the Krill prize.

The award ceremony will take place in February 13, 2017 during the gala dinner of the 83rd ICS Annual Meeting. Congratulations to Sharon for her achievements!

Ehud Keinan

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