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December 25, 2023

Dear ICS members,

I am pleased to announce the 2023 ICS-Uri Golik Prize winner for an Excellent Graduate Student, **Mr. Bar Cohn** of the Schulich Faculty of Chemistry, the Technion, for his outstanding contributions to ultrafast dynamics of the interaction between molecular vibrations and optical cavities at ambient conditions.

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Mr. Bar Cohn
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Bar Cohn was born in kibbutz Gesher Haziv in Western Galilee in 1993. He is a Ph.D. student at the Schulich Faculty of Chemistry at the Technion under the supervision of Prof. Lev Chuntonov. He obtained B.Sc. degrees in Chemistry and Material Engineering (2016) and M.Sc. in Chemistry (2018) at the Technion. His research focuses on novel aspects of the interaction between light and matter. Bar designs and fabricates photonic meta-surfaces made of arrays of metallic nano-antennas, which enhance the coupling between molecular vibrations and infrared light. His work led to significant progress in the field of surface-enhanced nonlinear infrared spectroscopy, including an explanation of the asymmetry in nonlinear two-dimensional line shapes, the introduction of an alternative signal enhancement mechanism involving radiation damping, design and fabrication of meta-surfaces for dual-frequency two-dimensional spectroscopy, vibrational ladder climbing experiments, and others. His recent work concerns the regime of the strong coupling between the light trapped by the meta-surfaces and molecular vibrations. The new hybrid states of light and matter, known as vibro-polaritons, could revolutionize traditional chemistry. To reveal the possible mechanisms by which vibro-polaritons can affect chemical reactivity, Bar studies the fundamental spectroscopic properties of these states and how they are affected by the molecular environment, molecular structure, and its disorder.

Bar has received the Ph.D. VATAT fellowship for quantum research and technology, and the Naomi Gani academic graduate excellence award from the Technion. He has published 15 research papers in various journals, including *J. Phys. Chem. L*, *J. Phys. Chem. C*, *J. Chem Phys.*, *Nanophotonic*, *ACS Nano*, *Materials Horizons* and *Nature Nanotechnology*. Bar has also received the Jacobs Prize for Excellent Publication for his work on "Vibrational Polaritons in Disordered Molecular Ensembles."

The award ceremony will occur during the 87th ICS Annual Meeting on April 3, 2024.

Congratulations to Bar for his achievements!

