## **Physical Chemistry Seminar**

## Engineering Quantum Properties of Molecular Circuits with Chemistry

## Masha Kamenetska

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I will describe my lab's recent progress in demonstrating and controlling quantum phenomena in single molecule junctions. Our past and future efforts are focused along two complementary directions. First, we work to demonstrated how synthetic modification can be leveraged to create functionality, such as quantum sensing, switching and high conductance of topological electronic states in molecules. Second, we develop chemical design principles for in situ assembly of quasi 1D molecular chains containing transition metal atoms with increased degrees of freedom. This work lays the foundation for our future advances in realizing and characterizing quantum phenomena in molecular circuits.

Wednesday, April 9, 2025





James Tarpo Jr. and Margaret Tarpo Department of Chemistry

**BRWN 4102** 

## Kamenetska Bio

Masha Kamenetska Joined Boston University in 2017 as joint assistant professor in the departments of Chemistry and Physics. She has been awarded the Young Investigator DOD Award (YIP) from the Airforce and the CAREER award from the NSF. She was a Fellow in the Scialog: Cellular Machinery of the Cell 2019-2021 and a Scialog Team Award recipient in 2021. Prior to joining BU, she was a Postdoctoral Associate in Chemistry and an NSF Postdoctoral Fellow in Biophysics and Biochemistry at Yale University from 2012-2017, working on single molecule force spectroscopy of biological and polymer materials. She received her PhD with distinction in 2012 in Applied Physics from Columbia University where she worked with Dr. Latha Venkataraman on conductance and binding geometries of single molecule-metal junctions.

https://sites.bu.edu/mklab/

