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המכון למצב מוצק

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## Coherent hole dynamics in attosecond molecular photo-ionization

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### Abstract

Molecular photo-ionization by attosecond pulses leads to creation of coherent superpositions of ionic states and as a result to coherent dynamics of the electron hole. The temporal extent of this coherent dynamics, that can be seen as a migration of the electron hole across the molecular volume, is limited by decoherence stemming from the zero-point energy of the nuclear vibrations, the nuclear motion itself, as well as by the electronic decay of the ionic wavepacket components above the double ionization threshold. In this presentation, I will discuss the theoretical interpretation of our recent hole migration experiments performed at the LCLS and FLASH X-ray free electron laser facilities, as well as the many-electron theoretical tools that allow us to gain insight into the mechanisms of the onset and decay of the coherent hole dynamics.

ההרצאה תתקיים ביום רביעי, ה-10.08.22 בשעה 12:30  
באודיטוריום המכון למצב מוצק, קומת כניסה

**The lecture will take place on Wednesday, 10.08.22 at 12:30  
at the Solid State Institute Auditorium, entrance floor**

Host: Professor Oren Cohen