סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ד' 15.12.21
(י"א טבת, תשפ"ב), בשעה 12:30 באמצעות הזום : https://technion.zoom.us/my/seminarjp

מרצה : דניאל סופר

מנחים : פרופ' גלעד יוסיפון ופרופ' טוביה מילוא

על הנושא:

Electro-orientation and Electro-rotation of Janus particles

The seminar will be given in Hebrew

תקציר ההרצאה :

The dynamics and resulting trajectories of a metallo-dielectric spherical Janus particle (JP), subject to the combined forcing by electro-rotation (ROT) and electro-orientation (EOR), are studied analytically and verified experimentally. First, we obtain frequency-dependent analytic expressions for the corresponding dipole terms for a JP composed of two hemispheres by applying the 'standard' (weak-field) electrokinetic model. ROT spectra describing the variation of the JP angular velocity on the forcing frequency and EOR transient response of the same angular velocity are explicitly determined and compared against experiments with varying JP size and solute conductivity. Finally, we consider the combined effect of ROT and EOR and analytically calculate the resulting trajectory showing interesting behavior and switching from linear to precessive motions, depending on the ratio between the amplitudes of the corresponding ROT and EOR fields. A good qualitative agreement was obtained between theory and experimental measurements.

בברכה,

פרופ"ח אתי סאס
מרכז הסמינרים