



סמינר מחלקתי – הנדסת חומרים

הנך מוזמן בזאת לסמינר אשר יתקיים ביום ה', 5 בדצמבר 2019, ז' בכסלו תש"ף,
בשעה 14:00, בניין 51 חדר 15 (באודיטוריום)

Chiral molecules and the electron spin: from spintronics to enantioseparations

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Usually spin-based properties are related to magnetic effects and magnetic materials, but the Chiral Induced Spin Selectivity (CISS) effect¹ surprisingly shows that chiral organic molecules can act as spin filters.

This effect gave researchers the ability of controlling the electron spin by using chiral materials. Recent examples of chiral-based spintronic devices^{2,3} and interesting applications of chiral surfaces for spin-controlled electrochemical reactions will be shown⁴.

A new wave of CISS-related phenomena rose up recently, when it was found that the charge polarization of chiral molecules is accompanied by spin-polarization. This translates to a different interaction energy of chiral molecules with a magnetic surface that depends on the direction of its magnetization. We exploit this new discovery to perform enantioselective reactions⁵ and enantioseparations^{6,7} based on a completely new paradigm.

References

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