



School of Nano Science

IPM Condensed Matter and
Statistical Physics Group

Weekly Seminar

Surface Coupling Effects on the Capacitance of Thin Insulating Films

Invited Speaker:

Dr. Tayeb Jamali

Shahid Beheshti University

Abstract:

A general form for the surface roughness effects on the capacitance of a capacitor is proposed. We state that a capacitor with two uncoupled rough surfaces could be treated as two capacitors in series which have been divided from the mother capacitor by a slit. This is in contrast to the case where the two rough surfaces are coupled. When the rough surfaces are coupled, the type of coupling decides the modification of the capacitance in comparison to the uncoupled case. It is shown that if the coupling between the two surfaces of the capacitor is positive (negative), the capacitance is less (higher) than the case of two uncoupled rough plates. Also, we state that when the correlation length and the roughness exponent are small, the coupling effect is not negligible.

Wednesday, 15 Ordibehesht 95 (4 May, 2016), 2-3 pm

Farmaniyeh seminar room