

212040 – ELECTRONIC SPECTROSCOPY AND VIBRATIONAL SURFACES

CREDITS: 04 (four) – 60 hours/class

CONTENT:

Plasmon fundamentals localized surface plasmon resonance. Surface intensified spectroscopies - SERS and SEF effects. Nanometric scale relevance in the field enhancement effect.

SYLLABUS:

1. Introduction to collective electronic phenomena in metals: plasmas.
2. Surface plasmon properties.
3. Localized surface plasmon and sensor applications.
4. Enhanced spectroscopy: Surface-enhanced Raman scattering (SERS).
5. SERS as a tool in adsorption studies and sensors.
6. Other intensified spectroscopies: surface-enhanced fluorescence (SEF), surface-enhanced infrared absorption (SEIRA).

BIBLIOGRAPHY:

1. AROCA, Ricardo. Surface-enhanced vibrational spectroscopy. Chichester-UK: John Wiley & Sons, 2006.
2. LE RU, E.; ETCHEGOIN, P.G. Principles of Surface-Enhanced Raman Spectroscopy and Related Plasmonic effects. Amsterdam: Elsevier, 2009.
3. Scientific literature articles to be discussed in class.