

## New insight from chemical imaging

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*Invité par Loic BERTRAND*

**Vendredi 29 Mai 2009 à 15h00**  
**Grand Amphi SOLEIL**

**Séminaires**

Recent advances in spectroscopy, such as the development of FTIR spectroscopic imaging using infrared array detectors, have opened up a window of opportunity within materials science, with applications to polymers, biomaterials, pharmaceuticals, and also facilitate research in areas ranging from biomedical to forensic and conservation sciences. FTIR spectroscopic imaging will enhance research at the interdisciplinary interfaces, stretching the boundaries between traditional science and engineering. This talk will outline the research we are developing in this area with focus on ATR (Attenuated Total Reflection)-FTIR spectroscopic imaging applied to heterogeneous materials. The advantages of micro ATR-FTIR imaging include its high spatial resolution (ca. 2 – 4  $\mu\text{m}$ ) and the relative lack of sample preparation. The spatial resolution is beyond the diffraction limit of infrared light in air opened up many areas amenable to study which were previously ruled out by the inadequate spatial resolution: for example, imaging of cross-section of a human hair or studying of chemical composition of the atherosclerotic lesions in arterial wall. The high spatially resolved information gathered using ATR-FTIR imaging is particularly valuable and complementary to other analytical techniques commonly used in the field of art conservation. Recent new developments in macro ATR-FTIR imaging with the use of inverted prism crystals show good potential with applications to protein crystallization and imaging of live cancer cells.

### BIOGRAPHY

Sergei G. Kazarian is Professor of Physical Chemistry and Director of Postgraduate Studies in the Department of Chemical Engineering at Imperial College London (UK). Professor Kazarian is a Fellow of the Royal Society of Chemistry. He joined Imperial College in 1998 and was promoted to Professor in 2006. Professor Kazarian has published over 140 articles in leading scientific journals. His research encompasses the fields of molecular spectroscopy, supercritical fluids, intermolecular interactions, polymeric materials and pharmaceuticals. A large part of his recent research focuses on the development of new approaches and applications of spectroscopic imaging.

**Formalités d'entrée** : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi Soleil du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

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