

## Infrared nanospectroscopy: From plasmons to proteins

*Rainer Hillenbrand, CIC nanoGUNE, San Sebastian, Spain, Ikerbasque, Basque Foundation for Science, Bilbao, Spain*

With the development of scattering-type scanning near-field optical microscopy (s-SNOM), the analytical power of visible, infrared and THz imaging has been brought to the nanometer scale. The spatial resolution of about 10 - 20 nm opens a new era for modern nano-analytical applications such as chemical identification, free-carrier profiling and plasmonic vector near-field mapping. After a brief overview of fundamentals and applications of s-SNOM, recent achievements such as broadband infrared-spectroscopic mapping of polymers and proteins will be presented, as well as the launching and mapping of propagating and localized plasmons in graphene nanostructures.

