

High-RAIMS

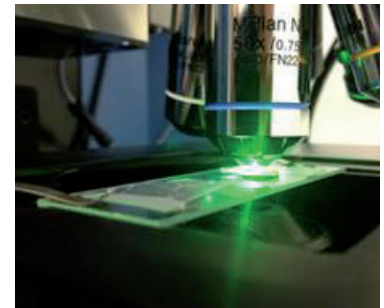
High-resolution Raman-Microscopy and nanoscale material analysis to support the material science subjects of the research focus IMS

Raman spectroscopy is a widely used optical method for material analysis. In the research focus **'Integrated Miniaturised Systems'** (IMS) several research groups have demanding needs for such a high resolution analysis.

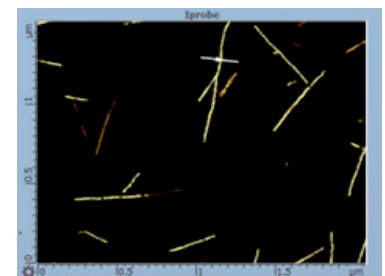
Examples are the graphene materials – as for instance addressed in BINAGO and in PROSENSE – or doping profiles of silicon in nanowire sensors. For the novel directions in IMS towards nanotechnologies such as nanoparticles or structures generated from nanoimprint lithography, the classical Raman spectroscopy faces physical limitations.

The new, cutting-edge Raman Microscopy setup realized in High-RAIMS is combining a classical Atomic Force Microscope (AFM) with a multi-purpose Raman Spectroscope using fibre optics. This enables 'tip-enhanced' Raman Spectroscopy (TERS) to chemically identify and characterise nano-objects such as carbon flakes, carbon nanotubes, nanoparticles, etc.

High-RAIMS is a combined project and a coordinated action of several research groups under the umbrella of IMS. In the BMBF program fh-invest such a 'large investment' was funded in 2015. It will be a precious germ cell to generate many future projects in IMS.



Close-up picture of the Raman microscope.



Tip-enhanced Raman spectroscopy of a carbon nanotube sample.

Project duration:

01/01/2015 – 30/06/2016

Project management:

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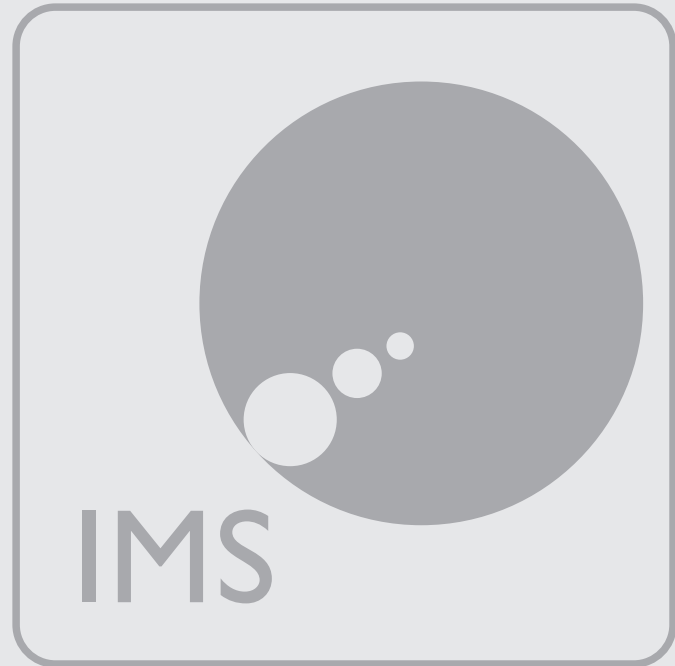
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Project partners:

All research groups involved in IMS.

Funding:

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