

Collaboration at Doctoral Level

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Las Palmas University, November 6th, 2015

Adam Mickiewicz University, Poznań, Poland

2006 – Establishing NBMC

2008 – funding 25 mln Euro – Equipment, 5 mln Euro – Building

2011 - funding 7 mln Euro – PhD, postdocs, research projects/ expire 2015/2016





EDUCATION BASED RESEARCH

- PhD Interdisciplinary Research Projects, 4 years (40 PhD students) in the area of nanoscience and nanotechnology
- Postdoctoral Research Program (30 persons)
- Master studies (60 students)
 - a) Biophysics, physics, optometry (spec: nano-bio-medicine): 2 years
 - b) Bio-Nano-Materials: 2 years
- E-learning in the nanoscience – ICT (laboratory trainings, courses, demonstrations)



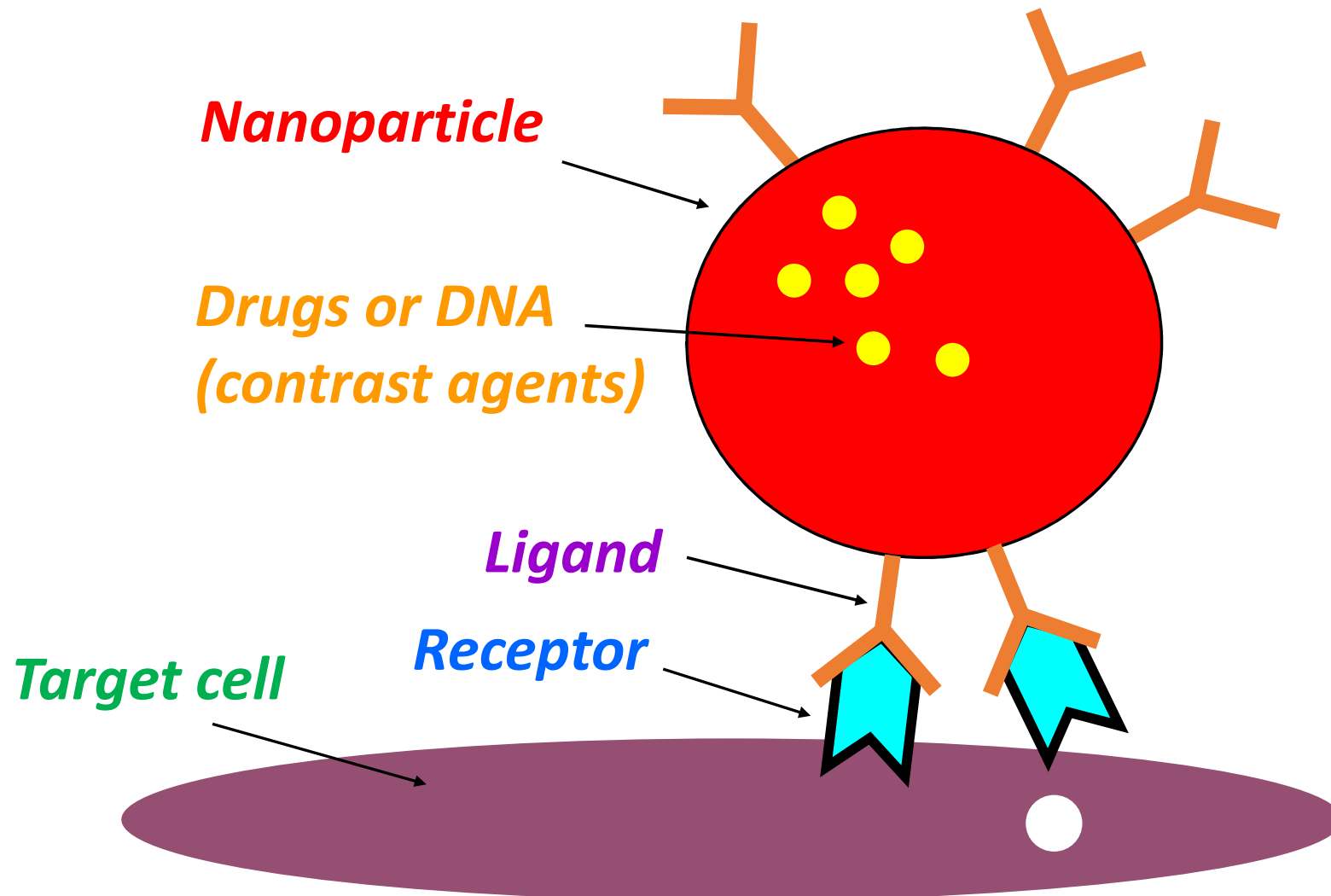
UNIQUE FEATURES

1. Interdisciplinarity in research (physics, chemistry, biology, medical and technical sciences)
2. Formal Doctoral Research Training in nanoscience and nanotechnology with supervisory team (instead of a supervisor) for a PhD student
3. Activities of PhD students towards managerial - academic and nonacademic skills - through workshops with various stakeholders
4. Strong international co-operation in nanotechnology area
5. Innovative structure for managing and promoting PhD research projects
6. Dedicated very modern nanotechnology research equipment

Interdisciplinarity -Research Projects



Biomedical Applications



Formal Doctoral Research Training within Graduate School

- **Formal (organized) research training** led by a supervisory team rather than a supervisor – broad graduate's skills, with one year research stay abroad, principally in transferable skills (academic, intellectual, technical, personal, and professional skills)
- **Support of activities driven by doctoral candidates** (skills awareness e.g. in nanotechnology e-learning teaching, in promoting annual Days of Science and Art., in building international student networks, in organizing annual nano conferences)
- **Career development** for both academic and non-academic positions, supporting setting-up start-ups, short organized study visits in future nonacademic employers, etc
- **Concepts and structures** in which some innovative changes to governance and collaboration are described.

International Partners

Research Center Jülich, Germany

Max-Planck-Institute for Molecular Biology, Berlin

Technical University, Munich, Germany

Carnegie Melon University, USA

New York State University, USA

University of Tufts, USA

University of Cambridge, UK

University of Aberdeen, UK

University of Tsukuba, Japan

Korea Basic Science Institute, South Korea

Universty of Hong-Kong, China

University of Ljubljana, SI

NCSR Demokritos, Greece

FORTH, Heraklion, Greece

University of Catania, Italy

University of Trieste, Italy

University of Nancy, France

University of Orlean, France

University of Bilbao, Spain

Freie Universität Berlin, Germany

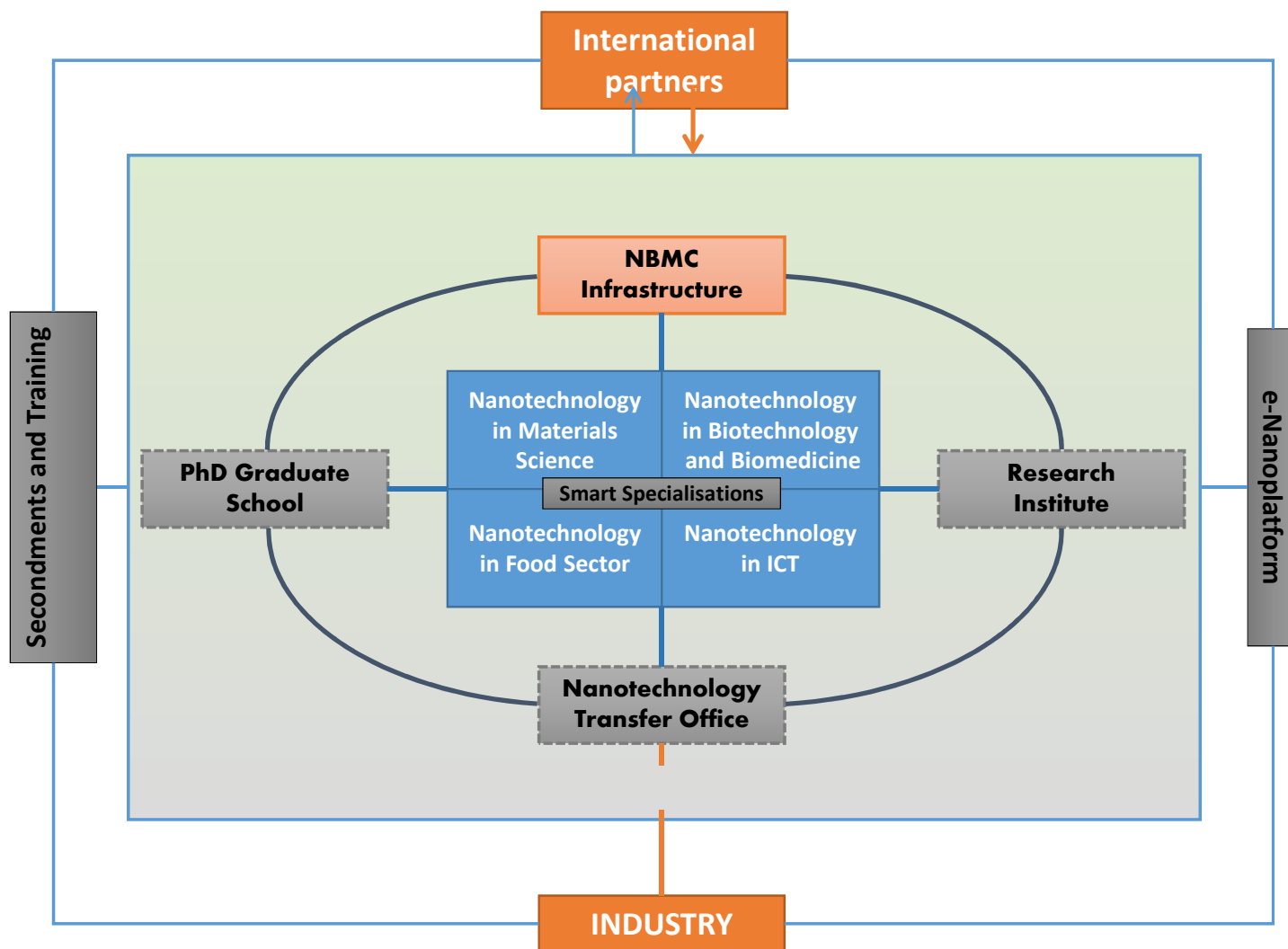
International events organized by NBMC supporting PhD Trainings

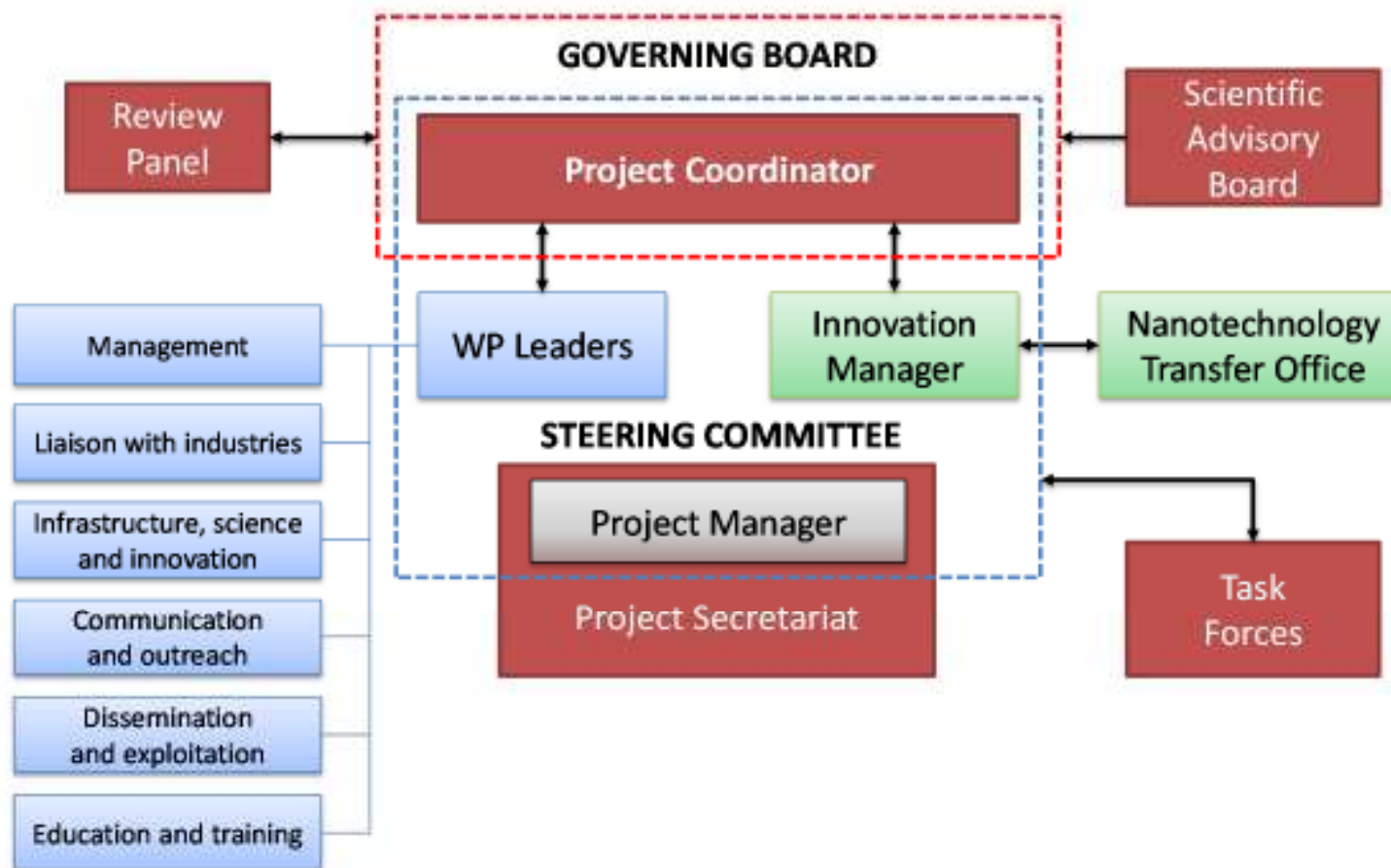
1. Annual Symposia on Nanomaterials and their Application to Biology and Medicine (in June, since 2010), Poznań International Fair, exhibitors (around 250 participants)
2. Annual AMPERE NMR Schools – NMR and Nanoscience, since 1990, in High Tatra Mountains (100 participants)



Innovative structure for managing and promoting PhD research projects







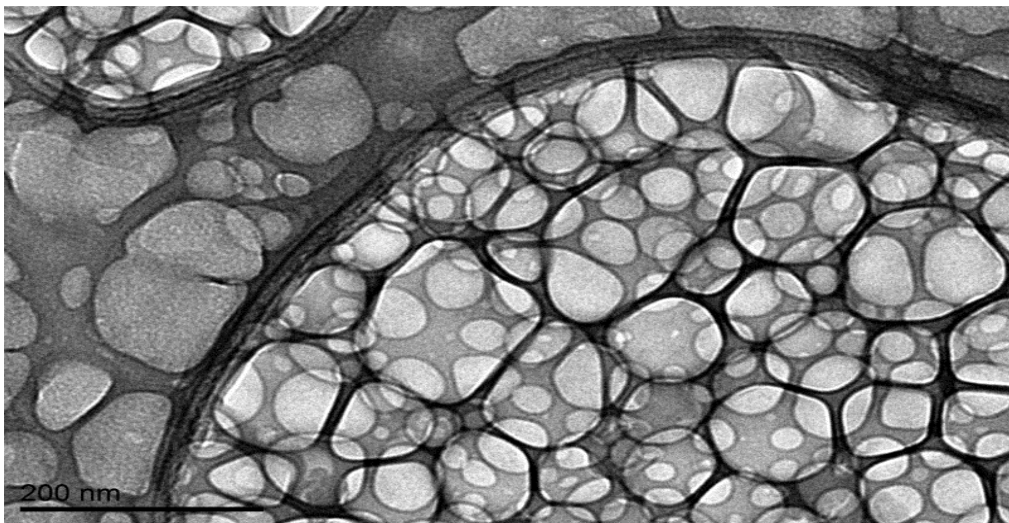
**NanoBioMedical Centre is involved in the
following research projects:**

- 1. Interuniversity project:
building and research facilities (PO I&E) ~ 30 M€**
- 2. PhD Programs (3) in Nanoscience and Nanotechnology ~ 4.0 M€**
- 3. Postdoctoral programs ~ 0.5 M€**
- 4. Erasmus Mundus program**
- 5. Nanomaterials as Potential Drug Delivery Systems (PBS) ~ 1.3 M€**
- 6. 7FP ESML, coordinator FZJ Juelich ~ 5.0 M€**
- 7. 7PR NanoMag, coordination DEMOKRITOS ~ 1.0 M€**
- 8. NCS ~ 0.4 M€**
- 9. SoftComp, network for NMR and Nano Conferences**

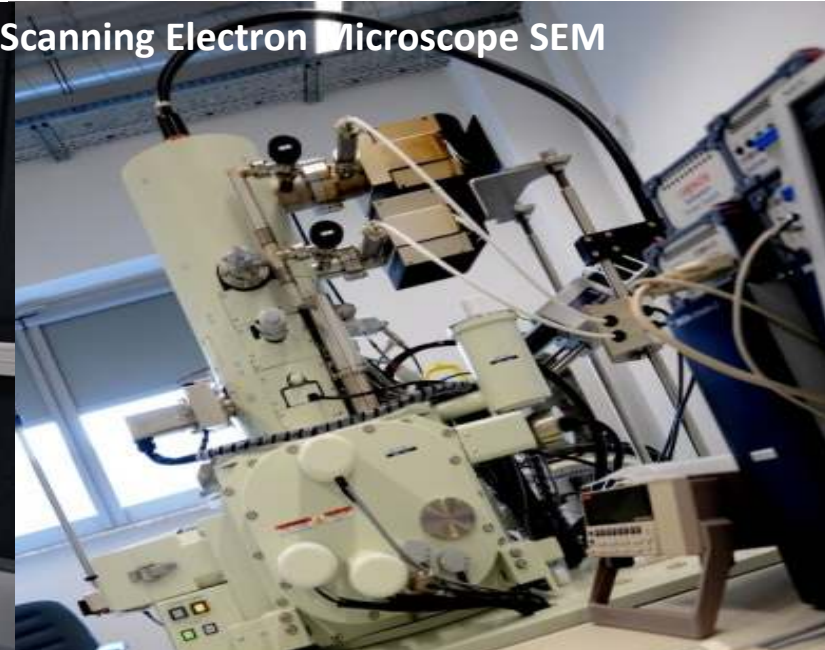
Electron Microscopy Laboratory

High Resolution Transmission Electron
Microscope HRTEM Jeol ARM 200F

Scanning Electron Microscope SEM

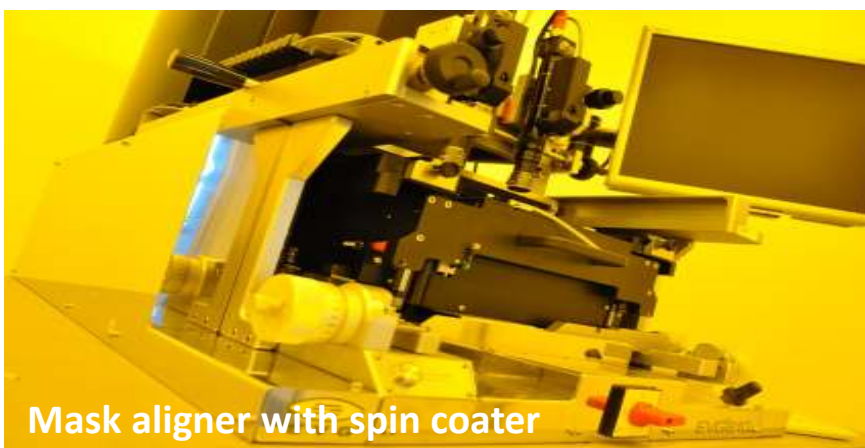


Transmission Electron Microscope TEM



CleanRoom Laboratory

Ultra High Vacuum Evaporator



Mask aligner with spin coater

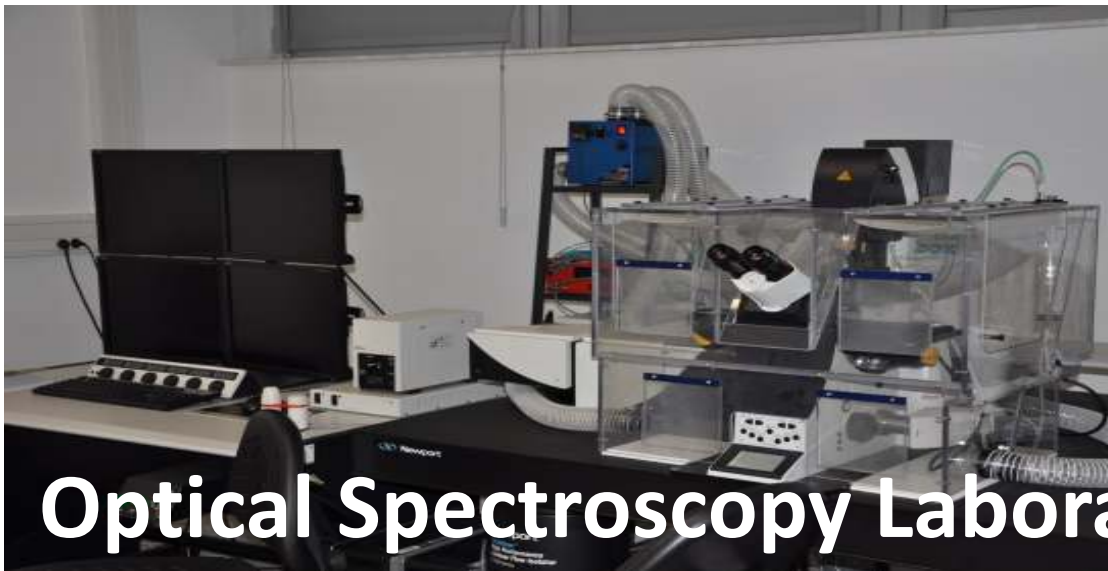


Atomic Layer Deposition

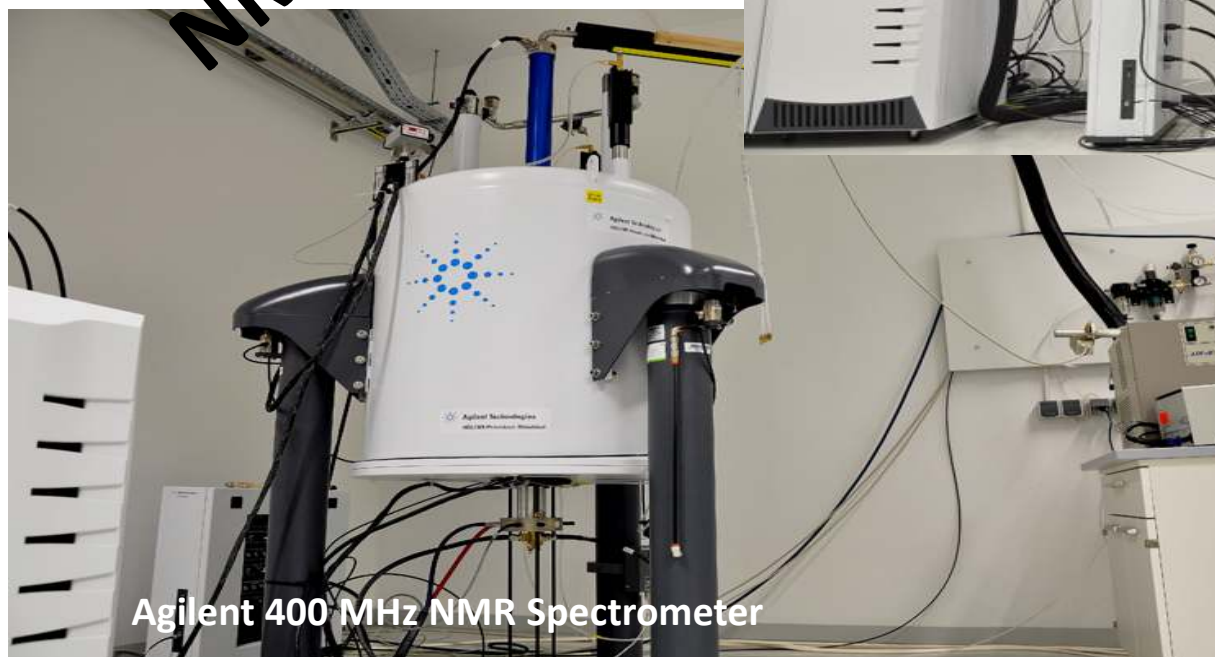
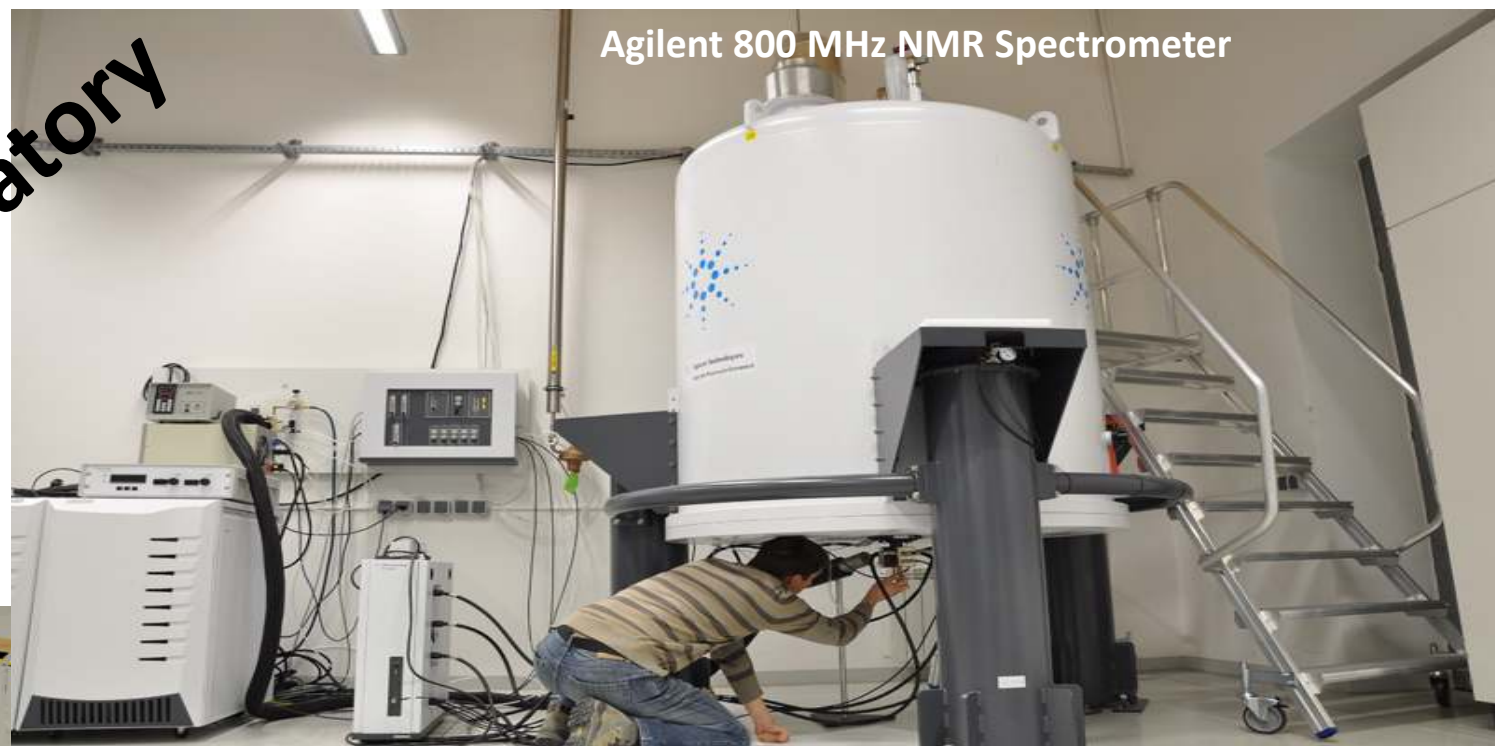
Confocal Microscopes

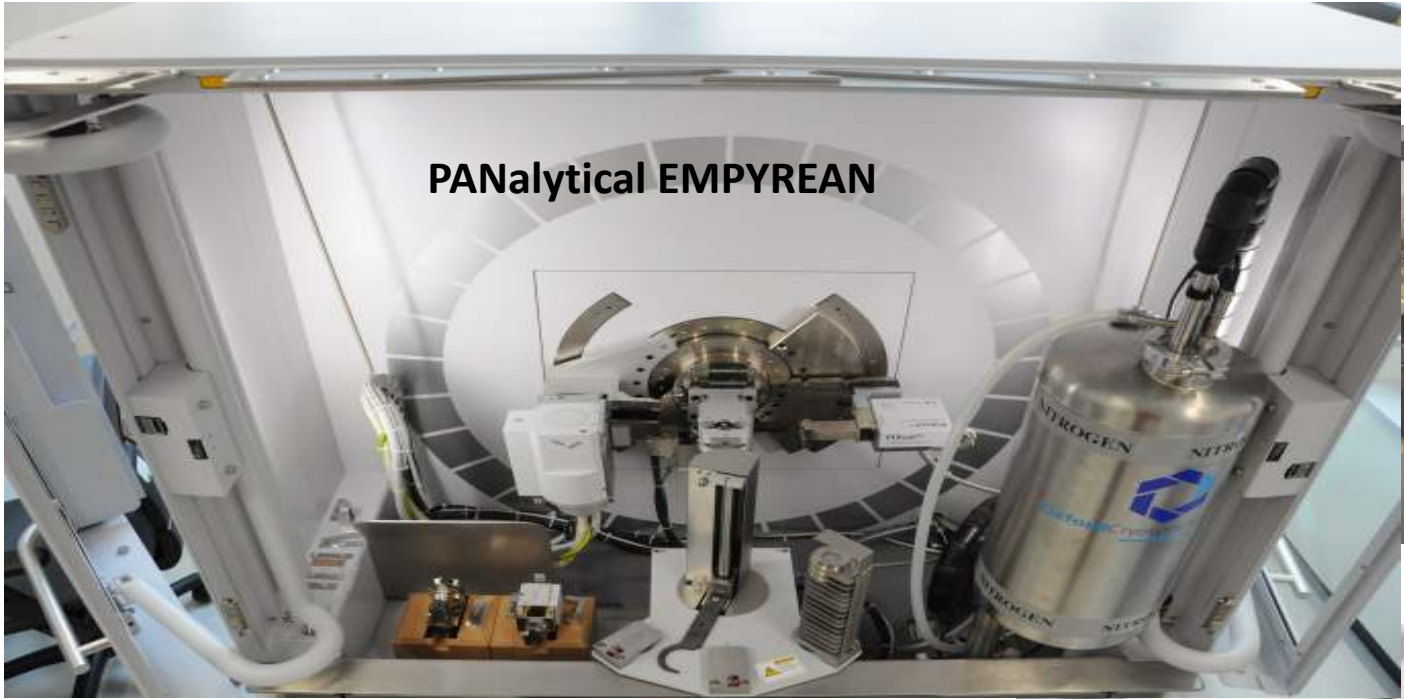


Optical Spectroscopy Laboratory



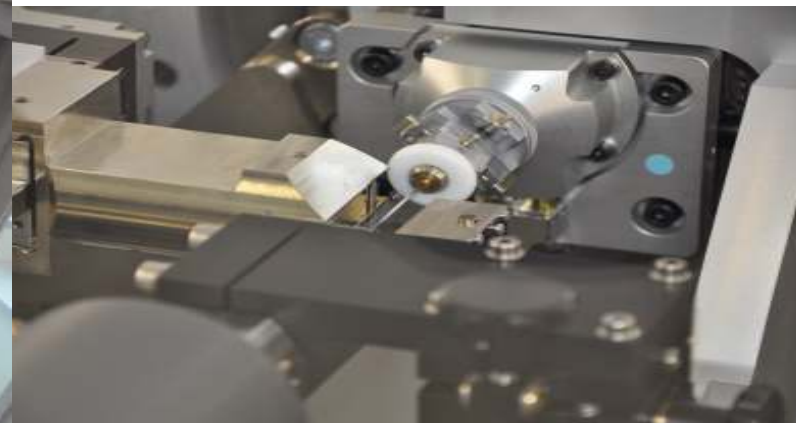
NMR/MRI Laboratory





PANalytical EMPYREAN

A photograph of the PANalytical EMPYREAN X-ray diffractometer. The instrument is housed in a large, white, circular chamber. In the center, a goniometer is visible, with a sample stage and a detector arm. To the right, a large, silver, cylindrical nitrogen gas cylinder is connected to the system. The background shows the internal structure of the chamber, including a large, circular, segmented ring.



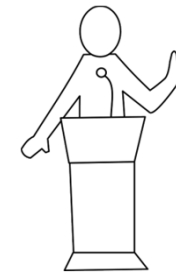
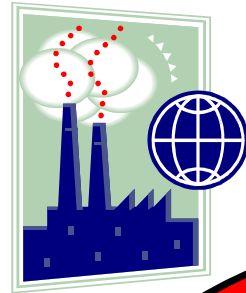
X-Ray Laboratory





Research group

Industry:
Buyers ,Suppliers
Related Industries
SMEs, Services



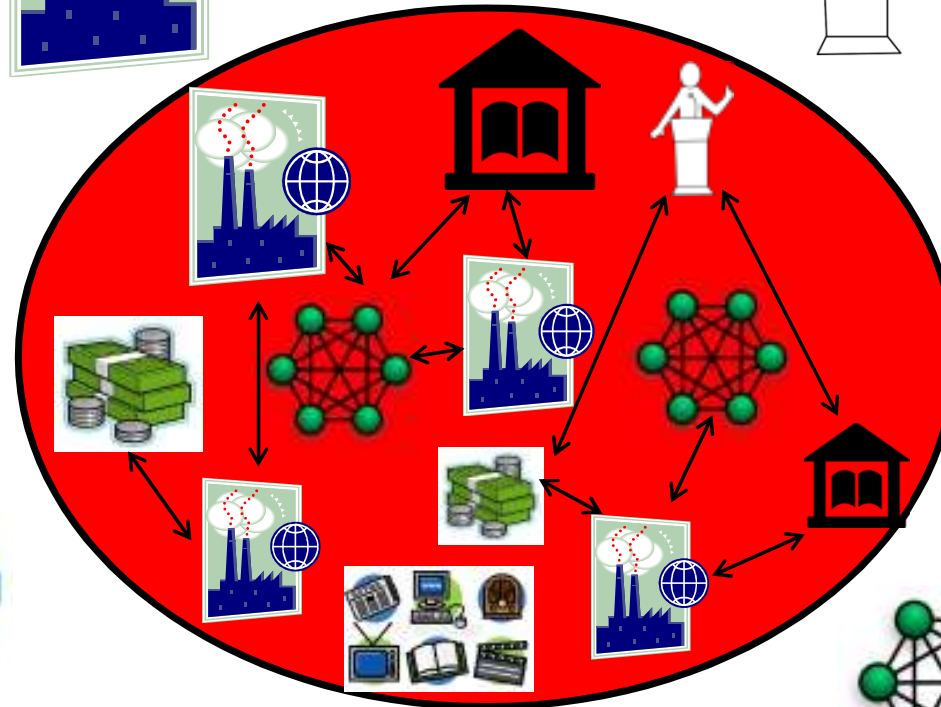
Public bodies:
Regional authorities (SSS)
Ministry of Science and Higher Education
Research Agencies



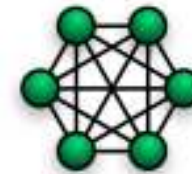
University:
Tech transfer offices
Technology parks
Laboratories



Finance:
Research Agencies
Banks
Venture Capitals
Business Agencies



Media



Formal and informal networks
Cluster organizations

Reactivation of SANDOC task group, composed of PhD Schools Directors and PIs of SG Universities

- Sharing good practices in PhD Training to bring excellence and innovation
- Enhancing interdisciplinarity by joint research projects within HORIZON 2020 and introduce stronger research component in SG activity
- Networking PhD students in different areas to bring awareness of various skills
- Making available research infrastructure to foster PhD research cooperation
- Playing an active role in European research, academic and professional organizations

Thank you very much for your attention!