Name of the Partnering Organization:	**Physics Faculty, TU Dortmund University**
Location (town, country):	Dortmund, Germany
Web site address:	http://www.icmab.es/icmab

Brief description of the organization

The TU Dortmund University has 20.000 students. Faculty of Physics has 11 chairs focused on experimental and theoretical physics of solid state and high energy. It operates DELTA synchrotron experimental facility and has collaboration with several Max-Plank and Fraunhofer institutes located in Dortmund.

Description of the research group

Chair of Experimental Physics 2 (Prof. Dr. Manfred Bayer). Research in basic physics is mainly focused on dynamical phenomena in semiconductor and magnetic nanostructures with a considerable emphasis on spin-related effects. Main Topics of research are:

- Correlation spectroscopy
- High resolution spectroscopy of semiconductors
- Optical harmonics generation in semiconductors
- Optically detected resonance of electron system and nuclear magnetic resonances (NMR)
- Ultrafast (pico- and femtosecond) spin dynamics
- Spin noise spectroscopy
- Ultrafast Acoustics
- Colloidal nanostructures

The EP2 chair has a world wide recognition as a leading group in optical spectroscopy on nanostructures. During last 10 years 8 papers have been published in Nature, Science, Nature Physics, 20 paper in Physical Review Letters and 50 papers in Physical Review B. At present, the group is formed by 3 professors, 1 Staff scientist, 5 PostDocs, 15 PhD students and 15 Master Students.

Ten laboratories of E2 are equipped with various setups for optical spectroscopy in wide temperature range from the room temperature down to liquid helium one (including milliKelvins), strong magnetic fields up to 17 Tesla. Various pulsed lasers for time-resolved measurements of dynamical processes with pulse duration from 10 nanosecond down to 30 femtosecond.

Selected list of relevant publications

Mode locking of electron spin coherences in singly charged quantum dots, Greilich A.; Yakovlev D. R.; Shabaev A.; M. Bayer, *Science 313, 341-345 (2007)*

Ultrafast optical rotations of electron spins in quantum dots, Greilich A.; Economou Sophia E.; Spatzek S.; M. Bayer, *Nature Physics 5, 262-266 (2010).*

Direct observation of correlations between individual photon emission events of a microcavity laser, Wiersig J.; Gies C.; Jahnke F.; M. Bayer, *Nature 460, 245-U108 (2009)*

Higher-Order Photon Bunching in a Semiconductor Microcavity, Assmann M.; Veit F.; Bayer M.; *Science 325, 297-300 (2009)*

Key researcher's CV

Prof. Dr. Manfred Bayer – Head of the Chair for Experimental Physics 2. Over 300 peer-reviewed scientific papers, around 60 invited talks at Workshops and Conferences, director of 20 PhD Thesis works. Actively involved in several scientific projects, European and national. Chair of the Senate of TU Dortmund University.