


Name of the Partnering Organization:	Johannes Kepler Universität	
Location (town, country):	Linz - Austria	
Web site address:	<a href="http://magicspin.jku.at">http://magicspin.jku.at</a>	
<b>Brief description of the organization</b>		
<p>The JKU (<a href="http://www.jku.at">www.jku.at</a>), is one of the leading universities in Austria. Besides chemistry, mathematics, mechatronics and informatics, the faculty of Natural Sciences at JKU includes 6 physics institutes (namely Applied Physics, Biophysics, Experimental Physics, Theoretical Physics, Surface- and Nanoanalytics - ZONA, and Semiconductor and Solid State Physics - IHFP). In addition to the long-standing tradition in supporting complex projects, the JKU has shown great commitment in building and enhancing an international network of partner universities. As the JKU is the largest research and academic institution in Upper Austria, it crucially contributes to the knowledge transfer and, thus, to the maintenance and the development of the region. In particular, the JKU participates in centres of competence and develops spin-off programs supporting business start-ups. JKU has also close links with business and industry and an international network of partners and co-operations. Together with the TMG (Technologie-Marketing GmbH Oberösterreich) and UAR (Upper Austrian Research GmbH), so called Centres of Competence are being constructed within the framework of the Austrian government's 'K-plus' and 'K-ind/K-net' (COMET) programs. Furthermore, the JKU hosts 7 Christian Doppler (CD) Laboratories funded by the Christian Doppler Society (<a href="http://www.cdg.ac.at/">http://www.cdg.ac.at/</a>) and by companies in a 50%-50% rate. There is a new on-campus Science Park, where high-tech spin-off companies and laboratories are hosted. Furthermore, the new Institute for Surface and Nanoanalytics (ZONA, <a href="http://www.zona.jku">http://www.zona.jku</a>) has been established at JKU. This new centre acts as a mediator between basic research and applied material science. It plays a primary role supporting interdisciplinary and interfaculty research, training and education through essential resources for electron- and ion beam micro- and nano-characterization of all kind of advanced materials, as well as analysis techniques for surfaces and interfaces.</p>		
<b>Description of the research group</b>		
<p>The JKU Magnetic Spin Materials Group lead by Alberta Bonanni specializes in epitaxial growth of nitride-based magnetic semiconductors and over the last five years has developed a comprehensive protocol of complementary nanoscale characterization involving synchrotron radiation (at the synchrotron sources of Grenoble, Lund and Trieste), advanced microscopy and spectroscopy. Beside the key researchers, currently 4 post-docs, two PhD students, two Master students and 4 bachelor students are full time involved in the fabrication and characterization of novel semiconductors for spintronics. The group is directly responsible for a laboratory for the metalorganic vapour phase epitaxy (MOVPE) of nitrides, a PL laboratory for the optical characterization of wide-gap semiconductors, magnetotransport facilities and an electron paramagnetic resonance set-up. Furthermore, the group has access to the in-house clean-room (lithography, reactive ion etching, sputtering, scanning electron microscope) and in-house monochromatic x-ray diffraction facilities. The members of the group are regular users of the TEM, XPS, Auger, Raman and FIB facilities at the ZONA Institute.</p>		
<b>Selected list of relevant publications</b>		
<p><b>Paramagnetic GaN:Fe and ferromagnetic (Ga,Fe)N: The relation between structural, electronic and magnetic properties</b>, Bonanni A. et al., Phys.Rev. B 75, 125210 (2007);</p> <p><b>Controlled aggregation of magnetic ions in a semiconductor. Experimental demonstration</b>, Bananni A. et al., Phys. Rev. Lett. 101, 135502 (2008);</p> <p><b>Embedded magnetic phases in (Ga,Fe)N: the key role of growth temperature</b>, Navarro-Quezada A. et al., Phys. Rev. B 81, 205206 (2010).</p> <p><b>Experimental probing of exchange interactions between localized spins in the dilute magnetic insulator (Ga,Mn)N</b>, Bonanni A. et al., Phys. Rev. B 84, 035206 (2011)</p>		
<b>Key researcher's CV</b>		
<p><b>Alberta Bonanni</b> – Associate Professor, group leader</p> <p><a href="http://magicspin.jku.at/alberta.bonanni.php">http://magicspin.jku.at/alberta.bonanni.php</a>: over 100 papers in peer reviewed journals, 3 invited reviews and more than 25 invited talks at major International Conferences and Symposia, PI of four national projects and person in charge of four European projects. Long-standing expertise in crystal growth, synchrotron radiation techniques, optical polarization methods, magnetic semiconductors, wide-gap-semiconductors, spintronics.</p>		