

ESAS Summer School, June 2012

By Pascal Tixador (Grenoble-INP)

July 5 2012 (HE65). The European school on superconductivity was held from 10 to 15 June 2012 at the "Domaine des Girards", between Lans en Vercors and Villard de Lans near Grenoble, France. Of the 30 accepted Ph.D. students most came from European Union (EU) countries, but one came from Japan, four from Turkey and one from Israel. Twenty-one lecturers, including one from the U.S., gave lectures on topics ranging from the physics of superconductivity to materials (NbTi, Nb₃Sn, MgB₂, BSCCO, YBCO, pnictides) and applications, both large scale (MRI, NMR spectrometer, particle physics, thermonuclear fusion, applications for power grids, ...) and electronic (Josephson junctions, RSFQ, detectors, superconducting quantum circuits, ...). Included were also topics such as characterizations, stability, AC losses and numerical modelling. The four speakers from industrial organizations (Absolut System, Bruker, Nexans and Siemens) emphasized the industrial prospects of superconductivity and the growth perspectives. The final talk "Future of Superconductivity" presented by P. Masson and prepared with A. Braginski perfectly summarized the school through highlights in the different areas. The summary program is accessible [here](#). That program included also visits to Air Liquide, Institut Néel and CRETA on the last day of the school.

The purpose of the Summer School is not only to provide basic education in superconductivity, but also to develop links and networking within the young community of students and researchers. Each participant presented a poster on own activity, to stimulate exchanges (see photo 1). The friendly ambiance of "Domaine des Girards" on the beautiful Vercors plateau, and a sunny hike up to the "Banc de l'Ours" (photo 2), followed by an evening in this Alpine restaurant (photo 3) also contributed to conviviality. Indeed, the low number of School participants are believed essential to maintain the conviviality and facilitate links.



Photo 1. Poster Session
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Photo 2. School participants at the "Banc de l'Ours"

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Photo 3. Convivial evening at "Banc de l'Ours"

European Summer Schools in Superconductivity were initiated in the 1990s under the sponsorship of the then existing EU excellence network "SCENET". The first such school was held in 1999 at Castellvecchio Pascoli (Lu), Italy. These annual schools found a significant resonance among participants and soon became appreciated and coveted by European students and young researchers. Consequently, after the expiration of "SCENET" in 2006, and thanks to the leadership of Prof. Dr. Matthias Noe (Karlsruhe Institute of Technology, KIT the European Society for Applied Superconductivity (ESAS, www.esas.org) decided to maintain and support the summer school program. These events are held every year alternately in Germany, Finland and France with partial support provided also by the IEEE Council on superconductivity (www.ewh.ieee.org/tc/csc/) and occasional industrial sponsors.

The 2012 Summer School was organized by the Cryogenics and Superconductivity Committee (www.affccs.org) of the AFF (French Association of Refrigeration) with the logistical support from Institut Néel. Besides ESAS and IEEE-CSC, French organizations such as AFF-CCS, Institut Néel, G2Elab, UJF, Grenoble INP, and the companies Air Liquide and Absolute System co-sponsored this event. Consequently, the school fees could be kept very low. The School Chairman was Dr. P. Tixador, secretary of the AFF-CCS and professor at Grenoble-INP.

Grenoble scientific institutions have a long tradition in the field of superconductivity, from physics to applications. We just mention two highlights: the hybrid magnet of Grenoble had the worldwide record of DC magnetic flux density (31.35 T) for several years while the YBaCuO crystal structure was first determined in Grenoble.