EMFL – a Distributed User Facility

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High magnetic fields are one of the most powerful tools available to scientists for the study, modification, and control of the state of matter. In 2015, the high magnetic field user facilities in Europe, the Dutch High Field Magnet Laboratory (HFML) in Nijmegen, the French Laboratoire National des Champs Magnétiques Intense (LNCMI) with two sites in Grenoble and Toulouse, and the Dresden High Magnetic Field Laboratory (HLD) established a single distributed research infrastructure, the European Magnetic Field Laboratory (EMFL). In an effort to better serve the international user community, the partner laboratories legally founded the EMFL as an international non-profit organization under Belgian law (Association Internationale Sans But Lucratif, AISBL). The successful implementation of EMFL has been rewarded by the landmark status in the 2016 roadmap list of the European Strategy Forum on Research Infrastructures (ESFRI). As a Landmark, EMFL is classified as a pan-European research infrastructure that ensures that scientists in Europe have access to world-class facilities that enable them to conduct cutting-edge research. The four facilities complement each other in their technical infrastructure for the generation of magnetic fields. In Grenoble, static magnetic fields up to 42 T are accessible and in Nijmegen, a hybrid magnet reaching 45 T is under construction. Pulsed non-destructive magnetic fields up to about 100 T (Dresden and Toulouse), and semi-destructive fields up to about 200 T (Toulouse) are available, each combined with a wide range of advanced high-resolution experimental techniques. Strong synergies within the EMFL have been achieved through joint networking, sharing of expertise in magnet design and experimental infrastructure, establishment of joint committees, training of staff, users and students, and public outreach. Calls for magnet time are organized twice a year through a single EMFL entry point and a common selection committee evaluates the proposals. A joint user committee collects user feedback and requests to the EMFL. In my presentation, I will give an overview on EMFL, summarize some technical developments, and highlight some recent results obtained in the facilities.