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Characterizations of superconducting materials at HZB with Quadrupole Resonator

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At the present time more and more low temperature superconducting materials and compounds are being developed around the world for new applications in future accelerators and industry. However, the production processes and recipes are not fully developed and require measurement tools for studies and optimization. The Quadrupole Resonator (QPR) is a cavity that is able to perform the most complete and precise characterizations of superconducting materials. The HZB QPR makes RF characterizations of superconducting materials (such as surface resistance as a function of magnetic field and temperature) over a wide temperature and magnetic field range, at frequencies of 433, 866 and 1300 MHz. In this contribution we summarize the latest measurement results of compact "detachable lid sample", produced by DESY from Large grain Nb and report on production status of 10 base samples in the "Research Instruments"(including Nb-Cu welded) that will be sent to interested stakeholders for thin film coating. Also we present current status and plans for new upgrades of HZB QPR.

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