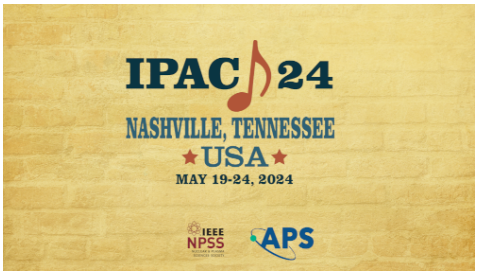

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Superconducting undulator mock-up coils with 18 mm period length –design and first cryogenic tests

Tuesday, 21 May 2024 16:00 (2 hours)

In advanced light sources such as 4th generation synchrotrons and Free Electron Lasers (FELs), undulators are important devices to produce photons with high brilliance. This necessitates to reach highest possible magnetic fields. For a given magnetic gap and period length this demand can only be accomplished by using the superconducting undulator (SCU) technology.
At the Institute for Beam Physics and Technology (IBPT) of the Karlsruhe Institute of Technology (KIT) there is an ongoing R&D collaboration on SCUs together with Bilfinger Noell GmbH (BNG). Within the latest project a SCU mock-up was designed and manufactured by BNG. This device is suitable for testing applications in liquid helium and conduction cooled environments at the IBPT measurement setups. Additionally, it aims for higher field applications as needed for implementation e.g., at the European XFEL.
In this contribution we describe the general layout of a ˜400 mm long mock-up coil package with 18 mm period length and present result of first cryogenic tests in liquid helium.

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