

Results of the high-B XFEL experiment have been published

The results of the high-magnetic-field XFEL experiment last May (2021) have been published. The portable single-turn coil (PINK-01) was used for the X-ray diffraction measurements at the Japanese XFEL facility SACLA.

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ARTICLE

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Generating 77 T using a portable pulse magnet for single-shot quantum beam experiments

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ABSTRACT

We devised a portable system that generates pulsed high magnetic fields up to 77 T with 3 μ s duration. The system employs the single turn coil method, a destructive way of field generation. The system consists of a capacitor of 10.4 μ F, a 30 kV charger, a mono air-gap switch, a triggering system, and a magnet clamp, which weighs less than 1.0 tons in total and is transportable. The system offers opportunities for single-shot experiments at ultrahigh magnetic fields in combinations with novel quantum beams. The single-shot x-ray diffraction experiment using a x-ray free-electron laser at 65 T is presented. We comment on the possible update of the system for the generation of 100 T.

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