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Development of the 100 T Pulsed Magnet at the Wuhan National High Magnetic Field Center

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The 100 T pulsed magnet was designed and manufactured at the Wuhan National High Magnetic Field Center (WHMFC). The magnet consists of three coils. The inner coil consists of 8 layers of 2.8 mm × 4.3 mm CuNb micro-composite wire developed in China. The middle and the outer coils were wound from 8 layers of 3.55 mm × 9.5 mm and 12 layers of 5 mm × 10 mms soft copper, respectively. The inner and middle coil will be driven by a 1.6 MJ/5.12 mF capacitor bank and by eighteen 1 MJ/3.2 mF modules, respectively. As the big volume of the outer coil consumes lots of energy, it will be driven by the 100 MJ pulsed generator/rectifier system installed at the WHMFC. The objective is to obtain 100 T peak magnetic field with contribution of 45, 35 and 20 T produced by the inner, middle and outer coils. In this paper we present the details of the design, manufacture and preliminary test of the three-coil magnet.

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