Superconducting 7 Tesla Wave Length Shifter for BESSY-II.

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Superconducting 3-pole Wave Length Shifter (WLS) with a maximum field of 7 Tesla at the central pole and 1.5 Tesla at the side poles was fabricated and tested by BINP in collaboration with BESSY-II. The radiation point is fixed in the center of WLS at any field level due to using of two correcting magnets at the both side of the non-dispersal straight section. The magnetic field is stabilized with accuracy of 10^{-4} at 7 Tesla by feedback system with use of NMR probes and magnetic flux pumps. Persistent current operation mode is enabled due to using of superconducting persistent keys. The magnetic field homogeneity of 10^{-4} at 7 Tesla is obtained at the central pole as a result of shimming in the aperture of the magnet. Protection system based on cold diodes and dump resistors allows to prevent the superconducting coils from destruction during the quench. Two screens with temperature of 20K and 60 K cooled by cooling machine, HTSC current leads and cevlar suspensions for supporting of helium volume are used to decrease a heat inleakage into the WLS cryostat. The cryostat is equipped by two recondensers for operation of WLS in boil off mode. The main features and operating mode of the WLS are described.

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