Status of X-ray Free Electron Laser Projects in China

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Currently there are two X-ray free electron laser (FEL) projects under construction in Shanghai, China. The soft X-ray free electron laser facility (SXFEL) is a 1.5GeV C-band linac based seeded FEL with output photon energy up to 0.4 keV. This facility is being developed in two steps, its test facility (SXFEL-TF), consisting of an 840 MeV C-band linac and a HGHG/EEHG undulator line, is under commissioning, and its user facility (SXFEL-UF), by upgrading the SXFEL-TF linac energy to 1.5 GeV and adding an additional SASE undulator line and five experimental instruments, is under construction, aiming to operate for users at the end of 2019. In the meantime, an 8 GeV CW superconducting linear accelerator based hard X-ray FEL facility (Shanghai Coherent Light Facility, SCLF) with maximum FEL pulse repetition rate up to 1 MHz and radiation photon energy covering 0.4 – 25 keV range, is in construction also at Zhangjiang High-tech Park of Shanghai now. This 3.1 km long facility is designed to be built in a tunnel located 30 m underground and provide ten experimental end-stations through 3 separate undulator lines at the end of 2025. This talk presents an overview and construction status of the SXFEL and SCLF projects mentioned above.