

THE THz-FEL FELBE AT THE RADIATION SOURCE ELBE

W. Seidel, FZD, Dresden, Germany

Abstract

Two free-electron lasers (FELBE; 4–21 μm and 18–250 μm , respectively) have been in routine user operation for a wide range of IR experiments at the radiation source ELBE in the Forschungszentrum Dresden-Rossendorf for several years. The lasers are driven by a superconducting RF linac that permits the generation of a cw-beam with a repetition rate of 13 MHz and a high average beam power. In addition, operation in a macropulse modus (pulse duration $>100 \mu\text{s}$, repetition rate $\leq 25 \text{ Hz}$) is possible. A few important experiments using the cw-operation are discussed. Furthermore, an outlook is given on the experiments which use the beam of FELBE in the High Magnetic Field Laboratory Dresden (HLD). The HLD provides pulsed magnetic fields up to 60 T. It operates as a user facility since 2007.

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