

High-power laser development in Jena

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The possibilities for experimental research on laser-particle acceleration strongly depend on the available laser and laboratory infrastructure. The Helmholtz-Institute Jena and the Institute of Optics and Quantum Electronics in Jena, Germany, currently operate two individual high-power laser systems (JETI and POLARIS), which differ in their laser parameters. In the future, these two laser systems will be synchronized to deliver laser pulses to a new radiation-shielded target area for two-beam experiments, either on pump-probe setups, sophisticated staged-acceleration experiments, or strong-field QED scenarios. Furthermore, the IOQ is developing high-power laser systems delivering pulses in the mid-IR region based on classical laser amplification in Cr:ZnSe as the active medium using well-suited mid-IR pump lasers. This presentation will give an overview on these different developments and the future prospects.

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