Laser-Driven X-Ray Sources at ELI Beamlines

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Three main paths have been developed within the ELI Beamlines research program for transforming driving laser pulses into brilliant bursts of short wavelength radiation: High-order harmonic generation in gases [1], Plasma X-ray sources and sources based on relativistic electron beams accelerated in laser plasma [2]. For each of these research areas, dedicated beamlines are built to provide a unique combination of X-ray sources to the user community. The employment of these beamlines has a well-defined balance between fundamental science and applications in different fields of science and technology. Besides those beamlines, plasma betatron radiation source driven by the PW-class HAPLS laser system is being commissioned in the plasma physics platform [3] to serve as a unique diagnostic tool for dense plasma and warm dense matter probing. Within this contribution, we will also present a new scheme for interferometric gas jet characterization with increased sensitivity [4].

References

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