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Photon Diagnostics at the Free Electron Laser FLASH

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We present an overview of the different photon diagnostic methods used at FLASH. After a short introduction to the free electron laser and the properties of the produced radiation, the requirements and difficulties of photon diagnostics in the spectral region of FLASH are discussed. The special properties of the radiation require unique diagnostic methods that are not commercially available. The individual methods for measuring the pulse energy (Gas Monitor Detector), beam position (GMD split electrodes), intensity profile/wavefront (wavefront sensor) and spectral distribution (Photoelectron spectrometer) are introduced. We will conclude with an outlook about future perspectives and developments in the field of photon diagnostics for free electron lasers.

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