

THE IR/VUV PUMP-PROBE FACILITY AT THE VUV FEL FLASH

U. Fruehling, DESY, Hamburg;
M. Drescher, Uni HH, Hamburg;
O. Grimm, DESY, Hamburg;
O.S. Kozlov, JINR, Dubna, Moscow Region;
E. Pläntjes, J. Rossbach, E. Saldin, E. Schneidmiller, M.V. Yurkov, DESY, Hamburg

Abstract

An electromagnetic undulator generating infrared radiation in the range of (1-1200) microns will be installed at the FLASH facility, the VUV FEL at DESY, Hamburg, in spring 2007. The device will use the spent electron beam from the FEL undulators and thus allow pump-probe experiments using infrared and vacuum ultraviolet radiation with almost perfect, natural synchronisation. Intensities in the few picosecond long infrared pulses are up to 10 MW peak (30 μ J), the 20-150 femtosecond long VUV pulses are in the GW level (up to 100 μ J). The basic layout and parameters of the device have been reported previously. This paper gives a summary of more detailed radiation generation calculations, including effects of tolerances and magnetic properties of the undulator. The transmission characteristic of the new infrared beam line is presented. A first VUV-pump/FIR-probe experiment will diagnose the longitudinal structure of the VUV pulses.

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