

Conceptual design for a THz pump X-ray probe facility at the European X-FEL

N. Stojanovic^{*}, G. Geloni⁺, V. Kocharyan^{*}, E. Saldin^{*}, T. Cowan[#], T. Tschentscher⁺ and M. Gensch[#]

^{*}DESY, ⁺X-FEL GmbH, [#]HZDR

In this contribution we would like to outline the conceptual design for a THz pump X-ray probe facility at the European X-FEL. The goal of the design is to transfer the merits of the world's first THz pump X-ray probe set-up at FLASH [1] of providing natural few femtosecond synchronization of the GW level THz pulses to the fs X-ray pulses [2,3] to the European X-FEL.

[1] M. Gensch et. al., *Infrared Phys. Technol.* 51 (2008), 423.

[2] U. Fruehling et. al., *Nat. Photon.* 3 (2009), 523.

[3] F. Tavella, N. Stojanovic, G. Geloni, M. Gensch, *Nat. Photon.* 5 (2011), 162.