



## SONDERSEMINAR QUANTENOPTIK und SFB TR 185

Freitag, den 07.04.2017 um 10:00 Uhr in Raum 46-576

Dynamical control of the coherent resonant forward scattering  
at atomic and nuclear transitions

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We discuss the possibility to control the spectral and temporal characteristics of the XUV, x-ray or  $\gamma$ -radiation at the exit of an optically thick medium with resonant atomic or nuclear transition by means of temporal-spatial low-frequency (radio, infrared or optical) modulation of the parameters of the resonant transitions. We focus on two potential applications: (i) intense soft-x-ray sources of attosecond radiation required for chemically sensitive high temporal and spatial imaging of the material and biological samples and ii) the single  $\gamma$ -photon – nuclear ensemble interfaces.

1. V. A. Antonov, Y. V. Radeonychev, O. Kocharovskaya, *Phys. Rev. Lett.*, 110, 213903 (2013)
2. F. Vagizov, V. A. Antonov, Y.V. Radeonychev, R.N. Shakhmurov, O. K., *Nature*, 508, p.80 (2014)
3. T.R. Akhmedzhanov, V.A. Antonov, and O. Kocharovskaya, *Phys. Rev.*, A 94 (2), 023821 (2016).
4. T.R. Akhmedzanov, M.Yu. Emelin, V.A. Antonov, Y.V. Radeonychev, M.Yu. Ryabikin, O. Kocharovskaya, *Phys. Rev. A*, *Phys. Rev. A*, A 95, 023845 (2017).