

Abstract Submitted
for the GEC09 Meeting of
The American Physical Society

Nonlinear Zeeman Spectroscopy of Nitric Oxide in Strong Magnetic Field¹ ANDREI KOTKOV, ANDREI IONIN, YURII KLIMACHEV, ANDREI KOZLOV, P.N. Lebedev Physical Institute of RAS — In our experiments the Zeeman splitting of several rotational-vibrational spectral lines of nitric oxide in pulsed magnetic field up to 14 T was measured with frequency-tunable CO-laser. We developed computational model for calculation of Zeeman splitting in different orders of perturbation theory for nitric oxide molecules. We took into account nonlinear Zeeman splitting in third order of perturbation theory only when the comparison demonstrated a satisfactory agreement between the experimental and calculated data on time histories of measured and calculated absorption coefficients in pulsed magnetic field. Our study demonstrated that nonlinear Zeeman spectroscopy of nitric oxide could measure a strong magnetic field up to 15T in plasma.

¹This research was supported by RFBR (Project 07-02-01400a).

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Date submitted: 11 Jun 2009

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