Abstract Submitted
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Magneto-optical imaging of magnetic domain pattern produced by intense femtosecond laser pulse irradiation[1] JAIVARHAN SINHA, SHYAM MOHAN, S.S. BANERJEE, Department of Physics, Indian Institute of Technology, Kanpur-208 016, U. P., India, S. KAHALY, G. RAVINDRA KUMAR, Tata Institute of Fundamental Research, 1 Homi Bhabha Road, Mumbai- 400 005, India — An important and intriguing area of research is laser plasma generated giant magnetic field pulses. Interaction of ultrashort high intensity laser pulses with matter involves several mechanisms for generating ultrastrong magnetic fields. By irradiating a magnetic recordable tape constituting of γ-Fe_2O_3 particles with an intense p-polarized femtosecond laser pulses ($\sim 10^{16}$ W cm^{-2}, 100fs), we have found complex magnetic field patterns stored in the tape. We image the local magnetic field distribution around the irradiated region [1] using the high sensitivity magneto-optical imaging technique. We understand the complex magnetic domains patterns recoded on the tape in terms of interesting instabilities [1] generated in the plasma produced during the irradiation of the tape with intense laser pulses.
[1] Jaivardhan Sinha, Shyam Mohan, S. S Banerjee, S. Kahaly, G. Ravindra Kumar, Phys. Rev. E **77**, 046118(2008). **satyajit@iitk.ac.in*

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