Abstract Submitted
for the OSS16 Meeting of
The American Physical Society

Study of shallow traps in SrTiO3 using thermo-luminescence spectroscopy POONEH SAADATKIA, FARIDA SELIM, Department of Physics and Astronomy, Bowling Green State University, Bowling Green, OH 43403 — Strontium titanate ($SrTiO_3$) is an important complex oxide with an unusual dependence of dielectric function on temperature and electric field. This special property makes it as an interesting material for fundamental and applied research. In order to investigate the presence of shallow traps in bulk single crystals of SrTiO3, Low temperature thermo-luminescence (TL) spectroscopy was applied before and after laser excitation. A TL peak close to the phase transition temperature and an unusual behavior for the kinetics of TL process in STO crystals have been observed. The TL peak was disappeared after annealing the sample in air. Measurements revealed that 266 nm femtosecond laser pulses induce permanent shallow traps in STO crystals. The formation of such stable traps may be due to lattice relaxation which seems to be behind many interesting phenomena in STO.

pooneh saadatkia
Department of Physics and Astronomy, Bowling Green State University, Bowling Green, OH 43403

Date submitted: 16 Mar 2016 Electronic form version 1.4