Abstract Submitted
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On the optical properties of strontium titanate REBEKAH THOMAS, Bowling Green State Univeristy, FARIDA SELIM, Bowling Green State University — Complex oxide SrTiO3 exhibits a range of novel physical phenomena and unusual electronic transport behavior. Recently we have discovered two orders of magnitude persistent photoconductivity in bulk single crystals after heating the samples with strontium oxide powder at 1200 C. In the present work SrTiO3 single crystals are annealed in various atmospheres to populate different types of defects. The formation of color centers and luminescence defects in the samples are investigated through optical absorption and luminescence measurements. UV-VIS-NIR absorption spectra are recorded at room temperature and luminescence emission spectra are recorded as a function of temperature from 77 k to 775 K. The study reveals the great influence of point defects on the optical properties of SrTiO3 bulk single crystals. Funding was provided by the National Science Foundation (DMR1359523 grant).

Rebekah Thomas
Bowling Green State University

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