

Abstract Submitted
for the CAL09 Meeting of
The American Physical Society

Metallic-like photoluminescence and absorption in fused silica surface flaws¹ TED LAURENCE, JEFF BUDE, NAN SHEN, THEODORE FELDMAN, PHILIP MILLER, WILLIAM STEELE, TAYYAB SURATWALA, LLNL — Using high-sensitivity confocal time-resolved photoluminescence (PL) techniques, we report an ultrafast PL (40 ps-5 ns) from impurity-free surface flaws on fused silica, including polished, indented, or fractured surfaces of fused silica, and from laser-heated evaporation pits. This PL is excited by the single-photon absorption of sub-band gap light, and is especially bright in fractures. Regions which exhibit this PL are strongly absorptive well below the band gap, as evidenced by a propensity to damage with 3.5 eV nanosecond-scale laser pulses.

¹This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract No. DE-AC52-07NA27344.

Ted Laurence
LLNL

Date submitted: 16 Oct 2009

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