luminescence, fluorescence (solids and liquids)

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Dynamic Quenching of Porous Silicon Excited States. — Porous silicon samples, prepared by a galvanostatic and an open- circuit etch in 50 wt.% HF of p-type single crystal Si(100), exhibit bright red-orange room-temp. photoluminescence (PL) in air and toluene solution. Dynamic quenching of the excited state(s) of the samples upon exposure to anthracene or 10-methylphenothiazine is typical of partially oxidized porous silicon. Partial surface oxidation of Si is shown by IR measurements. Neat toluene restores the PL intensity. Excited states which emit light at high energy are quenched more rapidly and efficiently than those which emit at lower energy. — (KO, M. C.; MEYER, G. J.; Chem. Mater. 8 (1996) 11, 2686-2692; Dep. Chem., Johns Hopkins Univ., Baltimore, MD 21218, USA; EN)