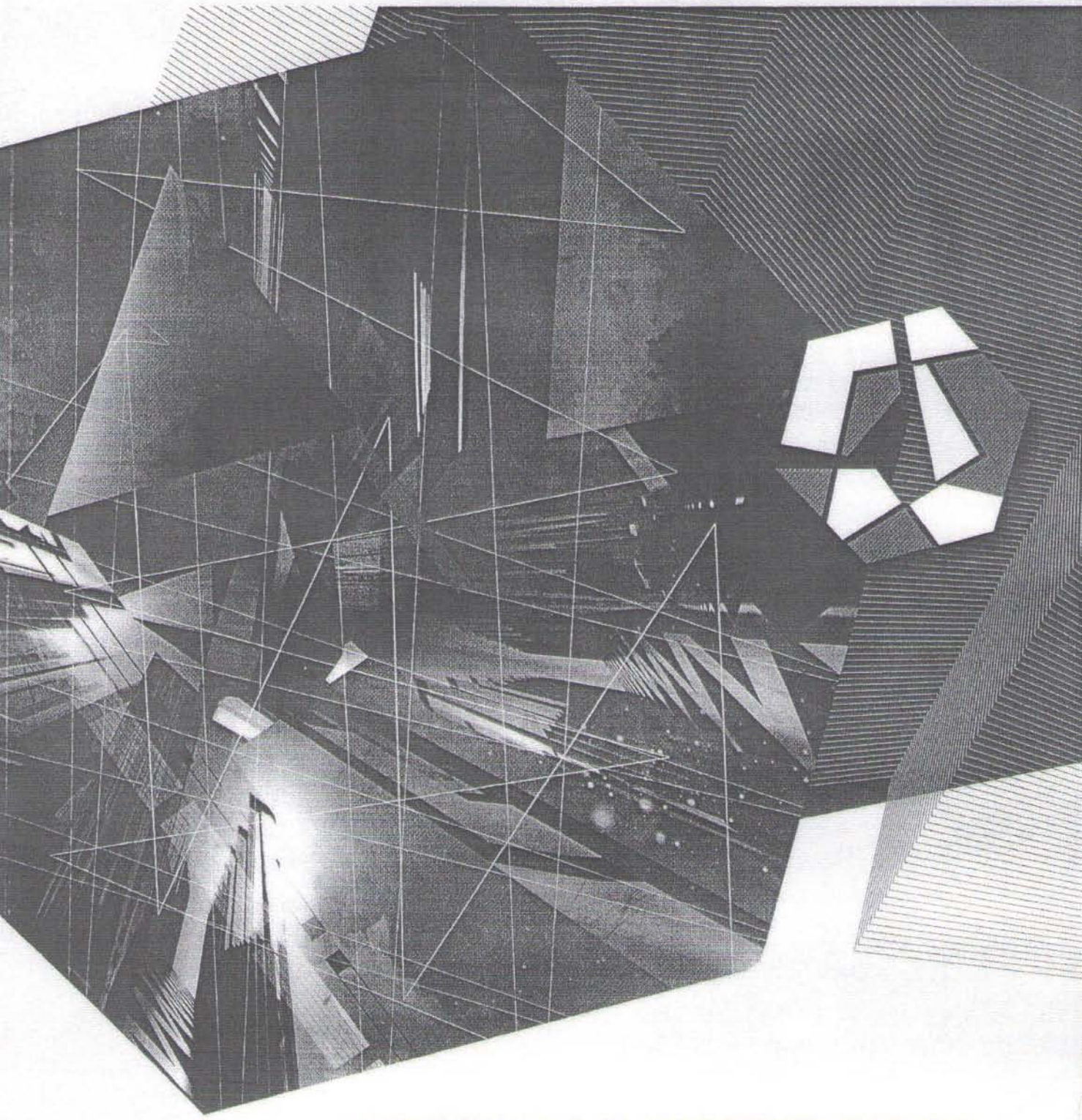

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analysis and transmission electron microscopy.In all samples up-conversion emissions and corresponding lifetimes are measured after excitation at 978 nm in the wide temperature range (10-300 K). The most intense emission originate from the following Er3+ transitions: [2H9/2→4I15/2] in blue (407-420 nm); [2H11/2, 4S3/2) → 4I15/2] green: 510-590 nm; and [4F9/2→4I15/2] in red (640-720 nm) spectral region.We showed that ratio of red to green emissions may be tuned with Yb3+-Er3+ dopant ratio and that intensity of up-conversion emissions and lifetimes are strongly influenced by powder particle size and crystallinity.

8:35 PM - RR3.06

Thermographic Properties of Up-conversion Emission of Y2O3:Yb, Er Nanophosphors Obtained through Hydrothermal Synthesis

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⊟ **Hide Abstract**

Thermographic phosphors are oxides doped with rare-earth or transition metal ions that will emit visible, infrared, or UV light upon excitation from an external energy source. This materials have received significant attention due to the potential application as optical temperature sensor. In this report, we have investigated yttrium oxide co-doped with changeable ytterbium to erbium ratio (Y1.94Yb0.05Er0.01 and Y1.97Yb0.02Er0.01) fabricated through hydrothermal synthesis. Process conditions (2h, 200 °C) and additional thermal treatment (3h, 1100 °C) allows obtaining nanoparticles of appropriate composition and morphology which further affect on improved photoluminescent characteristics. The fluorescence intensity ratio (FIR) technique is used to examine potential usage of samples as low temperature sensors.This optical method is based on ratio between two emission lines or areas in photoluminescence spectrum which show temperature dependence. Photoluminescent measurements (PL) are recorded in the temperature range from 10 K to 300 K under 978 nm exciting wavelength observing changes in following transitions: blue 2H9/2→4I15/2, green (2H11/2, 4S3/2) → 4I15/2 and red 4F9/2→4I15/2. Obtained experimental results implay that the fluorescent intensity ratio of the blue, green and red lines and areas show significant temperature sensitivity and can be used as low temperature sensor.

8:42 PM - RR3.07

Nanoorganized Polarized Media and Hybrid Luminescent Mesoporous Materials Based on Lanthanide-containing Lyotropic Mesogens

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