

ELECTRONIC ENERGY TRANSFER ON FRACTALS

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Self-similar structure with dilatation symmetry referred as fractals¹⁾ are of considerable interest. In condensed matter physics several disordered systems can be characterized by a fractal geometry on microscopic scale. Porous glasses are a priori outstanding candidates to determine the fractal dimension of such an irregular structure. The method used rests on the measurements of direct long range singlet-singlet electronic energy transfer of excited rhodamine B (donor molecule) toward an ensemble of randomly distributed acceptor (malachite green)²⁾. Measurements are underway using picoseconds spectroscopy to analyse with sub picoseconds resolution the temporal behavior of the excited state population of the donor molecules in several porous glasses like Vycor 7930, a home made porous glass of initial composition $65\text{SiO}_2-4\text{Na}_2\text{O}-4\text{K}_2\text{O}-27\text{B}_2\text{O}_3$ (in weight %) and leached in weak acid and aerogels prepared following the method developed by Woignier et al³⁾.

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