†Electronic Supplementary Information (ESI)

Low Temperature Synthesis of Quantum size-Gadolinium monosulfide (GdS) Nanoparticles and their Pathogen Capture efficiency

Vyom Parashar[a*], Shiv K. Pandey[a] and Avinash C. Pandey[a]

Experimental Details

Dry powder sample of GdS was used for all the experimental investigations except for Transmission Electron Microscopy (TEM)analysis were carbon coated copper grid (100 mesh) was prepared by solution-casting and air drying at room temperature. TEM was performed on FEI Tecnai G^2 30 microscope. XRD of the powder sample were performed on Rigaku D/max-2200PC diffractometer operated at 40kV/20mA and 40 kV/40 mA, using $CuK_{\alpha 1}$ radiation. GdS nanoparticles were characterized by UV-Vis absorption (Perkin Elmer Lambda 35 spectrophotometer) and TGA/DSC (thermogravimetric analysis and deferential scanning Calorimetric analysis) (Perkin Elmer Pyris Series-Diamond TGA/DTA). IR spectra were recorded with a Perkin Elmer FT-IR spectrometer. The GdS samples were dried, pressed into KBr pellets and measured. Room temperature magnetization measurement was carried out using a vibrating sample magnetometer (VSM, ADE Magnetics, USA) up to an applied field of 1.80 T with pressed pellets of prepared powdered samples.

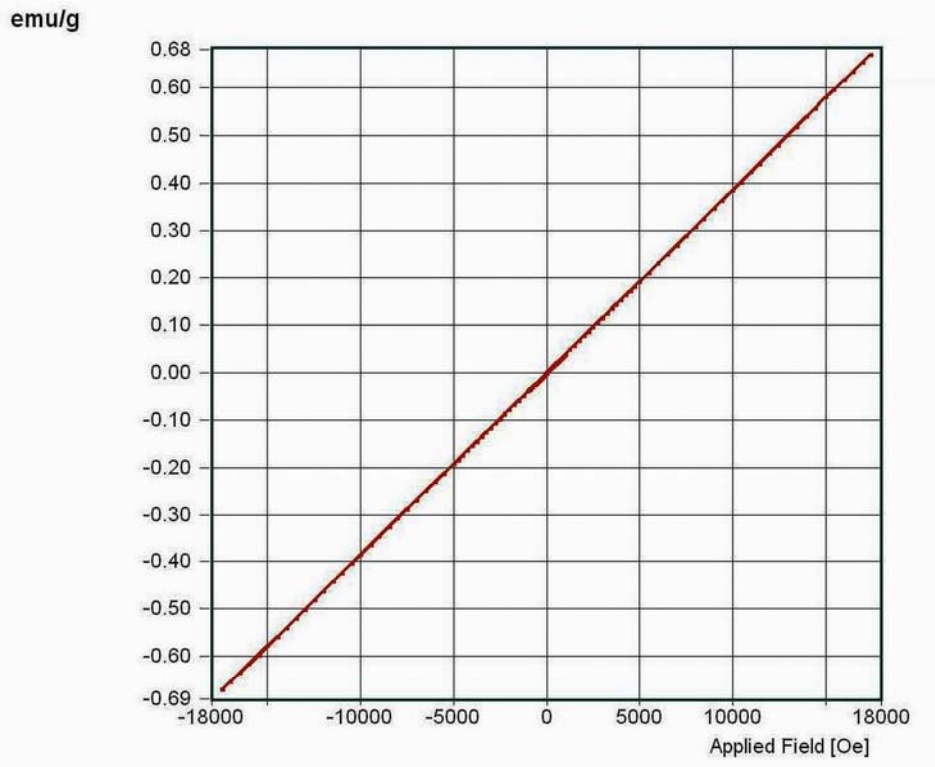

Fig. S1. . M–H curve ($-1.8 \leq H \leq 1.8$ T) at temperatures (T) 300 K of GdS nanoparticles

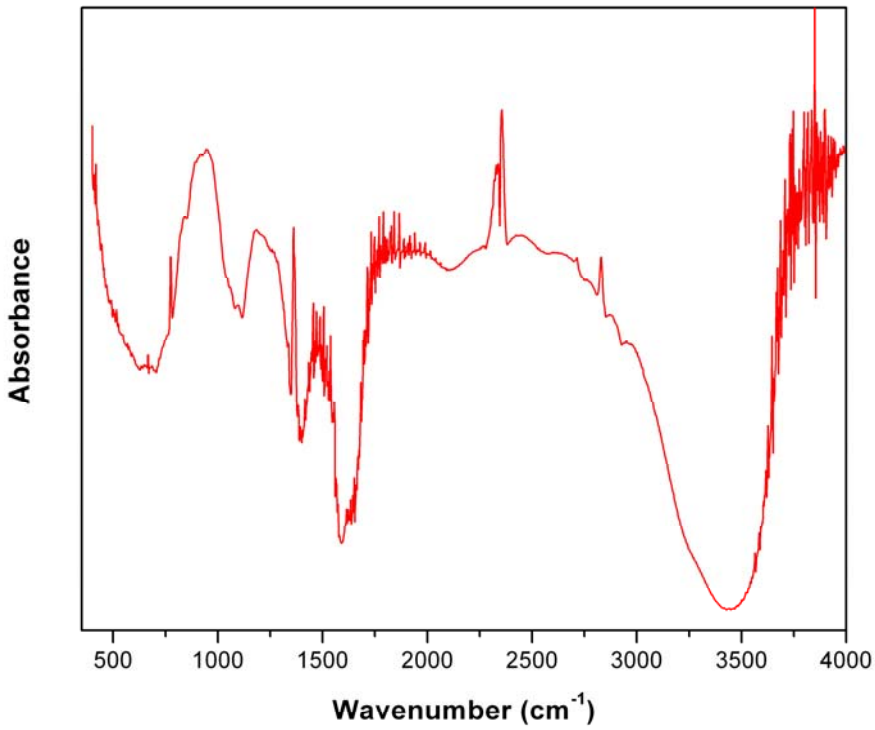

Fig. S2. FT-IR spectrum of dextrose capped GdS nanoparticles. Peaks assignments: From 600 to 1500 cm^{-1} C-O and C-C groups vibration modes are present and the carbohydrates generally shows their characteristic bands. From 2900 to 3450 cm^{-1} assigned to CH and OH vibrations groups.