Electronic Supplementary Information

COEXISTENCE OF ANTIFERROMAGNETISM AND FERROMAGNETISM IN Mn^{2+}/CdS NANORODS AND THEIR PHOTOPHYSICAL PROPERTIES

Table 1. Photoluminescence properties of un-doped and manganese doped CdS nanocrystals

System	Peak position (nm)	Peak width (cm^{-1})	Peak Amplitude (a.u)	Peak Intensity (a.u.)
Un-doped $V_{Cd(lattice)}$	**552**	**2867**	**4.55**	**13045**
Trap (sulfur ; surface)	*610*	*1749*	*2.28*	*3988*
0.1% $V_{Cd(lattice)}$	**556**	**2853**	**3.21**	**9158**
Trap (sulfur ; surface)	*610*	*1652*	*2.42*	*3997*
Mn^{2+}	**585**	**1632**	**2.90**	**4733**
0.5% $V_{Cd(lattice)}$	**555**	**2854**	**2.92**	**8334**
Trap (sulfur ; surface)	*610*	*1641*	*2.33*	*3824*
Mn^{2+}	**585**	**1635**	**2.34**	**3826**
1% $V_{Cd(lattice)}$	**556**	**2852**	**2.85**	**8128**
Trap (sulfur ; surface)	*610*	*1642*	*2.28*	*3744*
Mn^{2+}	**586**	**1635**	**2.07**	**3384**
5% $V_{Cd(lattice)}$	**556**	**2851**	**2.68**	**7641**
Trap (sulfur ; surface)	*610*	*1641*	*1.95*	*3400*
Mn^{2+}	**588**	**1632**	**1.35**	**2203**
5% Post $V_{Cd(lattice)}$ -annealed	**556**	**2849**	**2.48**	**7066**
Trap (sulfur ; surface)	*610*	*1635*	*1.71*	*2796*
Mn^{2+}	**589**	**1638**	**0.72**	**1179**

Table 2. EPR properties of pre-annealed CdS/Mn^{2+} at 300 and 77 K

CdS/ % Mn^{2+} %Mn^{2+} T in K	Line width (ΔHpp) in mT	Amplitude	Peak Intensity
0.1% 300	20.5	0.321	65.6
77	19.8	0.106	21.0
0.5% 300	19.5	0.161	31.2
77	19.4	0.054	10.5
1% 300	18.0	0.150	27.0
77	19.1	0.052	09.9
5% 300	17.0	0.130	22.1
77	19.0	0.045	08.5

ESI Fig. 1 Manganese PL intensity vs manganese concentrations. Inset: Manganese d-d emission peak position vs manganese concentration