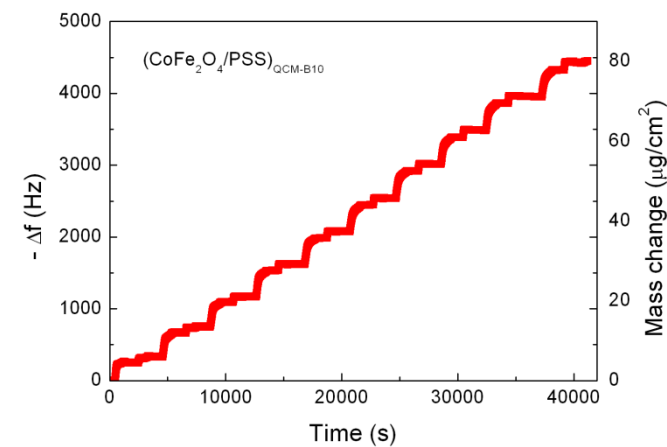
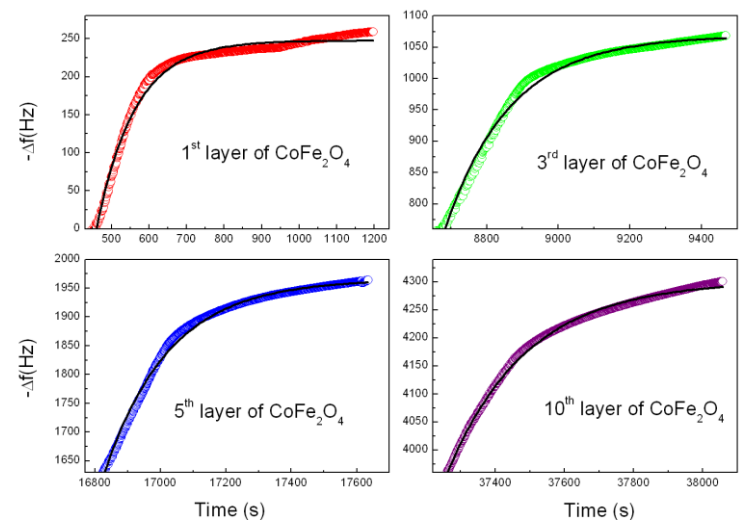


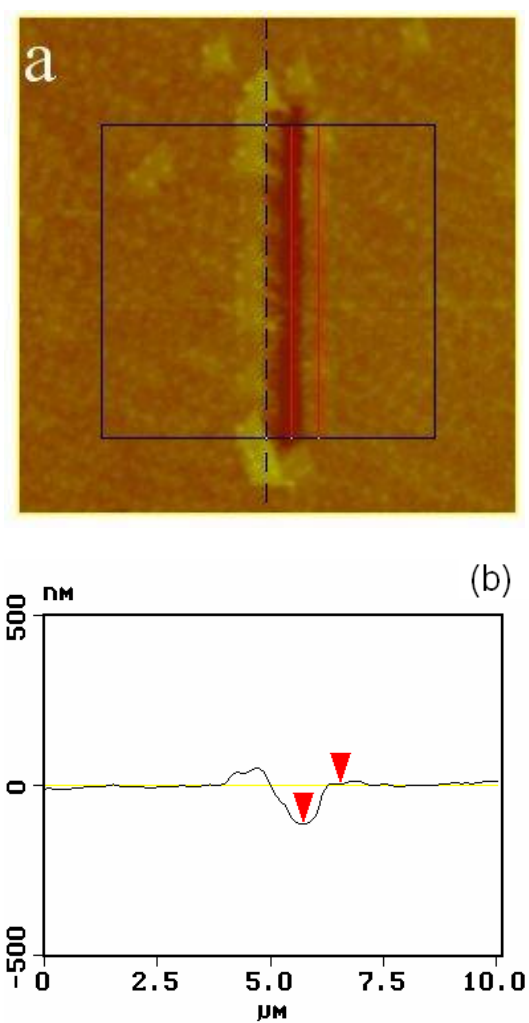
Electronic Supplementary Information



ESI 1 Deposition of multilayered films of  $(\text{CoFe}_2\text{O}_4/\text{PSS})_{\text{QCM-B10}}$  monitored by QCM for a time window larger than eleven hours. Magnetic dispersions (at different nanoparticle concentration) and fixed polyelectrolyte concentration were introduced alternately into the QCM cell (*in situ*), which mimics a LbL procedure.



ESI 2 Adsorption isotherms for the 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup>, and 10<sup>th</sup>  $\text{CoFe}_2\text{O}_4$  nanoparticle layers, assembled using colloidal dispersion samples. S-B.



ESI 3 (a) Typical AFM image ( $10\ \mu\text{m}^2$ ), showing the spot selected by AFM tip on the sample containing 10-bilayers of  $\text{CoFe}_2\text{O}_4/\text{PSS}$ ; (b) topographic profile of the step.