

Real time movie showing the optical response of large area 2D networks of gold nanoparticles interconnected with hydrophilic PEG chains upon exposure to short pulses of humid air. The increased humidity causes a dramatic, yet fully reversible, colour shift from blue to red which is given by the intertwined contribution of changes in the refractive index and interparticle distance due to the adsorption of water molecules within the PEG backbone.