

Supporting Information for: Optimization of 3D Plasmonic Crystal Structures for Refractive Index sensing by Maria *et al.*

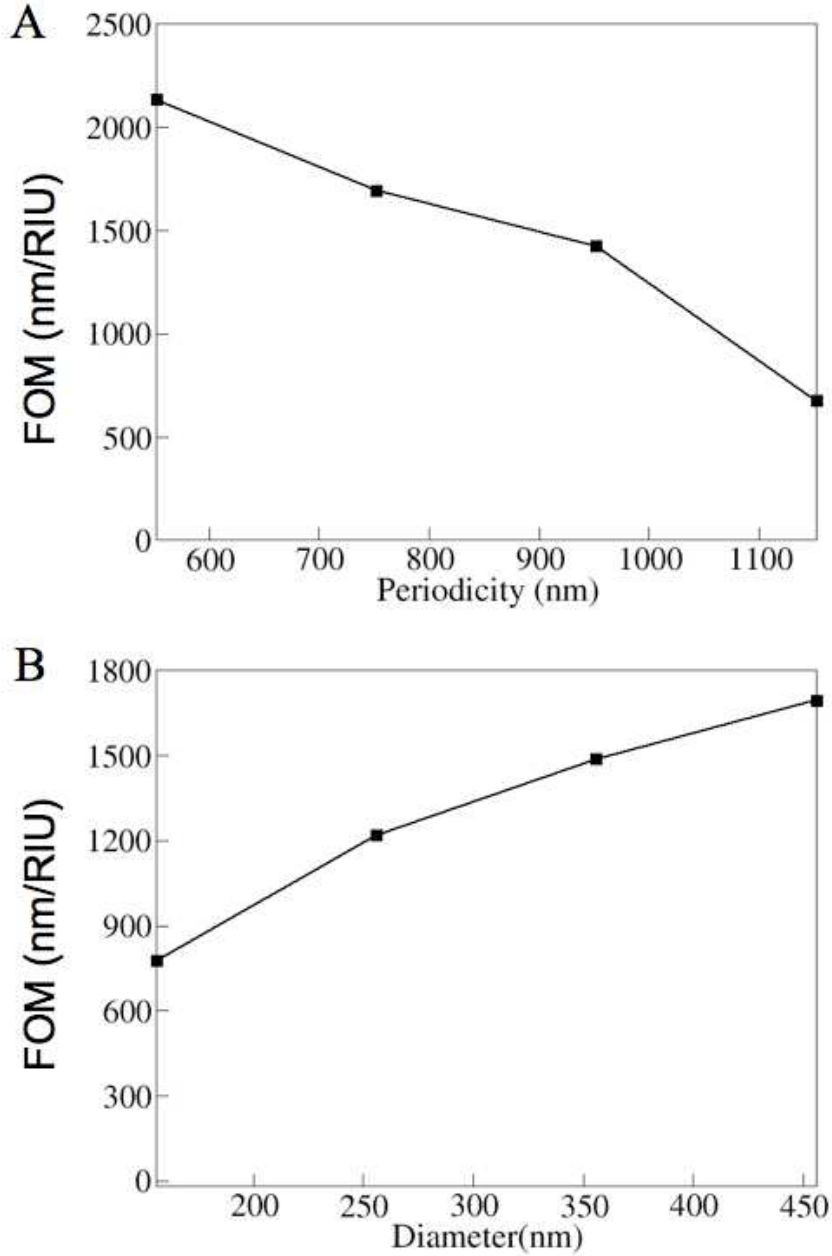


Figure S1. (A) Calculated figure of merit (FOM) for a series of plasmonic crystals with a well diameter of 456nm, a relief depth of 350nm and periodicities of 552nm, 752nm, 952nm and 1152nm. (B) Calculated figure of merit (FOM) for a series of plasmonic crystals with a periodicity of 752nm, a relief depth of 350nm and well diameters of 156nm, 256nm, 356nm and 456nm. The gold thickness is 32nm on the top, 8nm on the sidewalls and 16nm on the bottom of the nanowell array for both series of crystals.

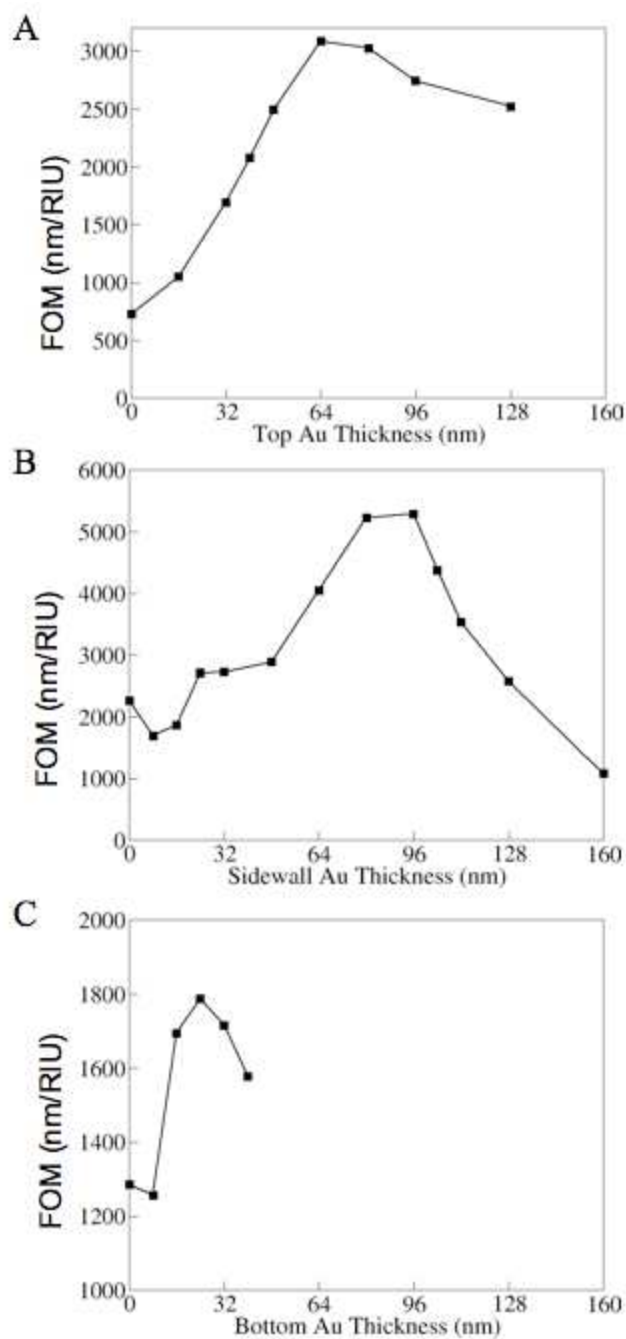


Figure S2. Calculated figure of merit for a series of plasmonic crystals with periodicity 752nm, well diameter 456nm, relief depth 350nm and gold thickness (A) 8nm on the sidewall, 16nm on the bottom and variable thickness on the top of the nanowell array, (B) 24nm on the top, 16nm on the bottom and variable thickness on the nanowell array sidewall, (C) 24nm on the top, 8nm on the sidewall and variable thickness on the bottom of the nanowell array.

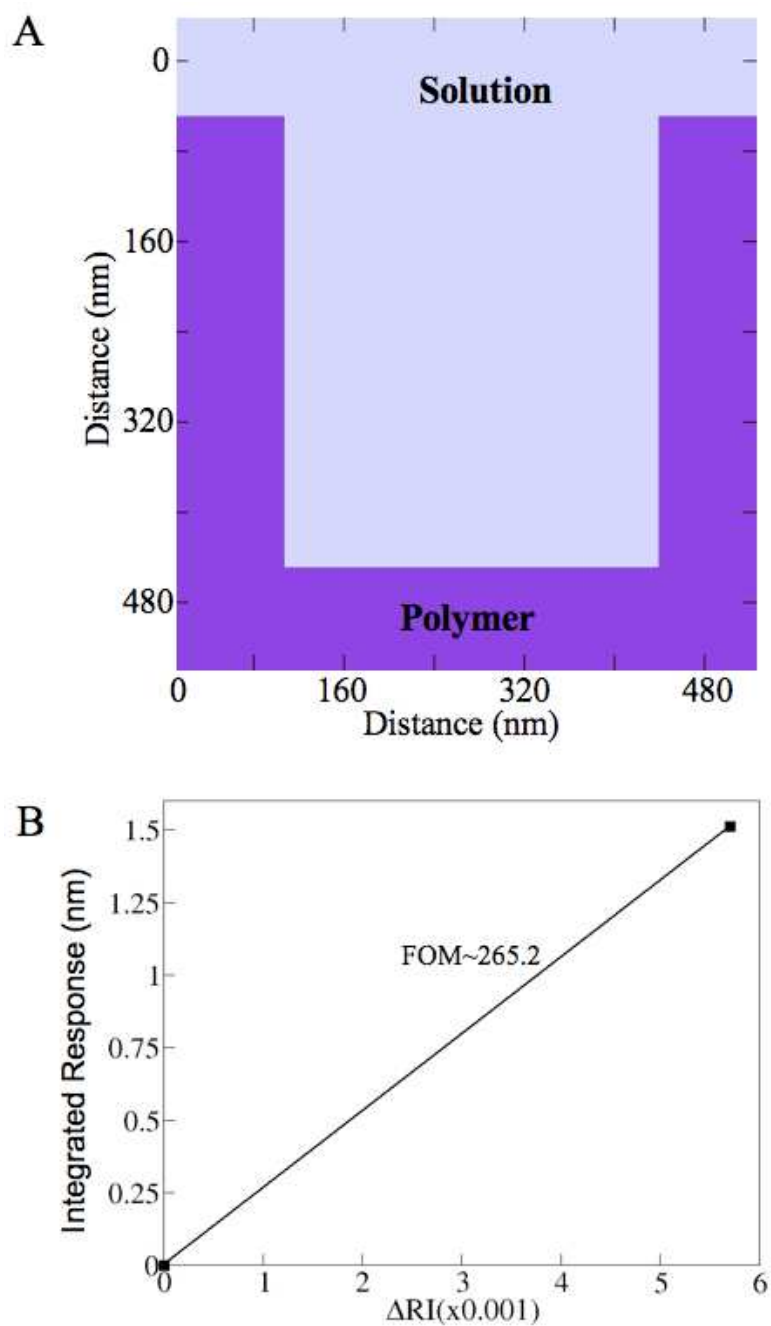


Figure S3. (A) Schematic diagram of the unit cell used to model a polymer nanowell array. (B) Plot of the total response of the crystal over all wavelengths as a function of the change in refractive index of the PEG solutions.

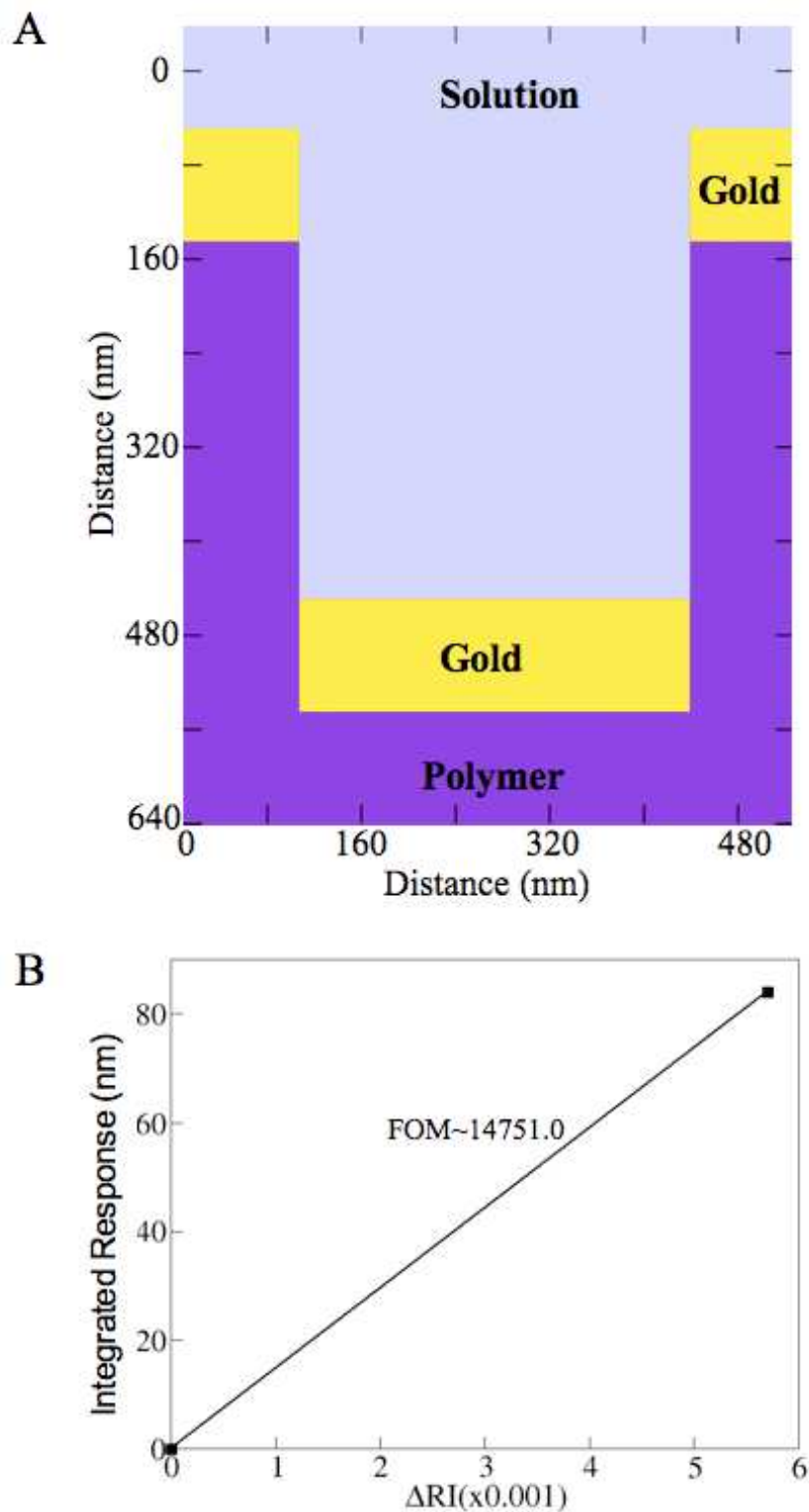


Figure S4. (A) Schematic diagram of the unit cell used to model a nanowell array with a 96nm gold thickness on the top and the bottom of the plasmonic crystal. This type of plasmonic crystal is designated by quasi-3D plasmonic crystal. (B) Plot of the total response of the plasmonic crystal over all wavelengths as a function of the change in refractive index of the PEG solutions.

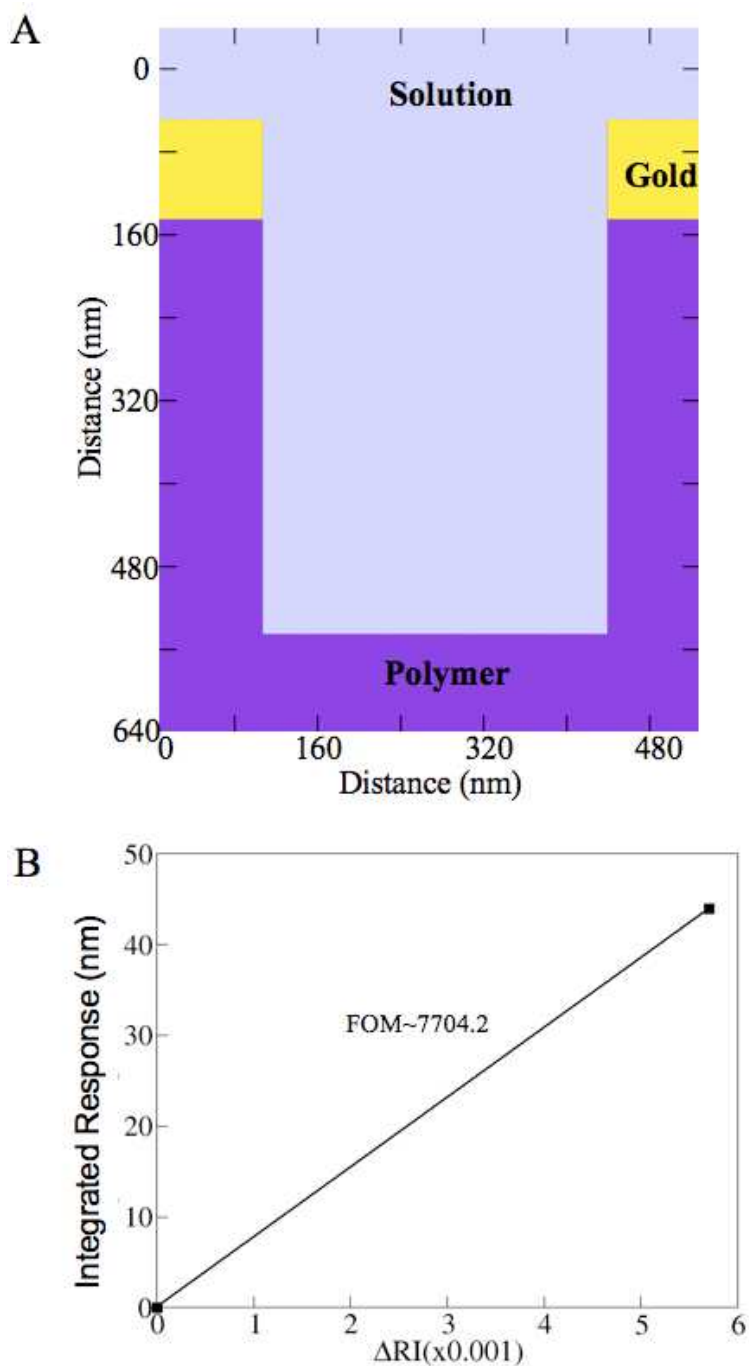


Figure S5. (A) Schematic diagram of the unit cell used to model a nanowell array with a 96nm gold thickness on the top of the plasmonic crystal. (B) Plot of the total response of the plasmonic crystal over all wavelengths as a function of the change in refractive index of the PEG solutions.