Chiral Nematic Stained Glass: Controlling the Optical Properties of Nanocrystalline Celluose-Templated Materials

Supporting Information

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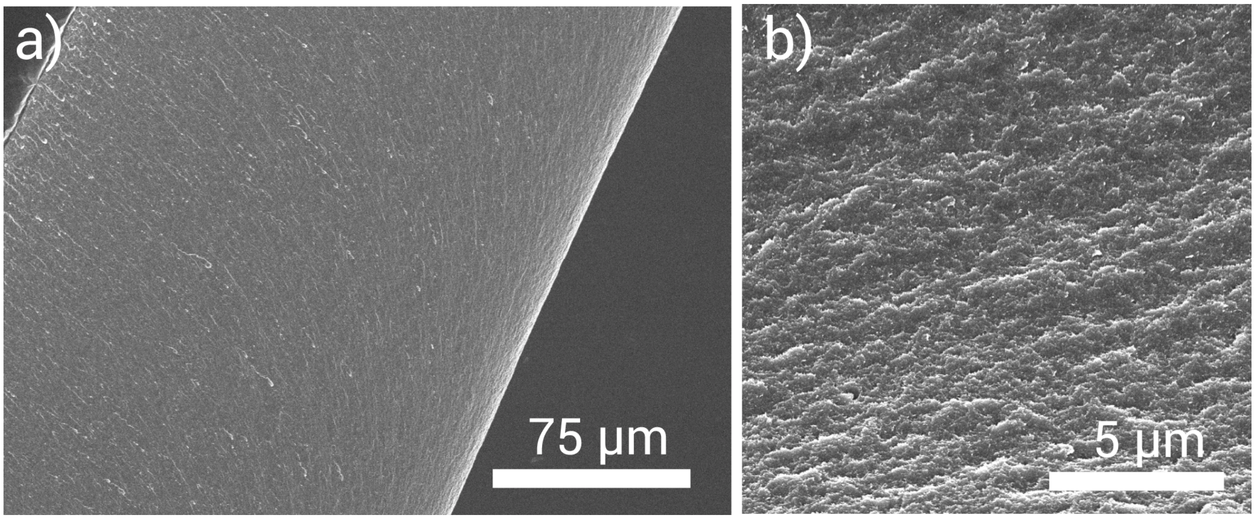

Figure S1: a) SEM of NCC/SiO_2 composite loaded with 2.5 mM $Fe(NO_3)_3$ showing a loss of chiral ordering. b) Higher magnification image showing a disordered, layered structure.

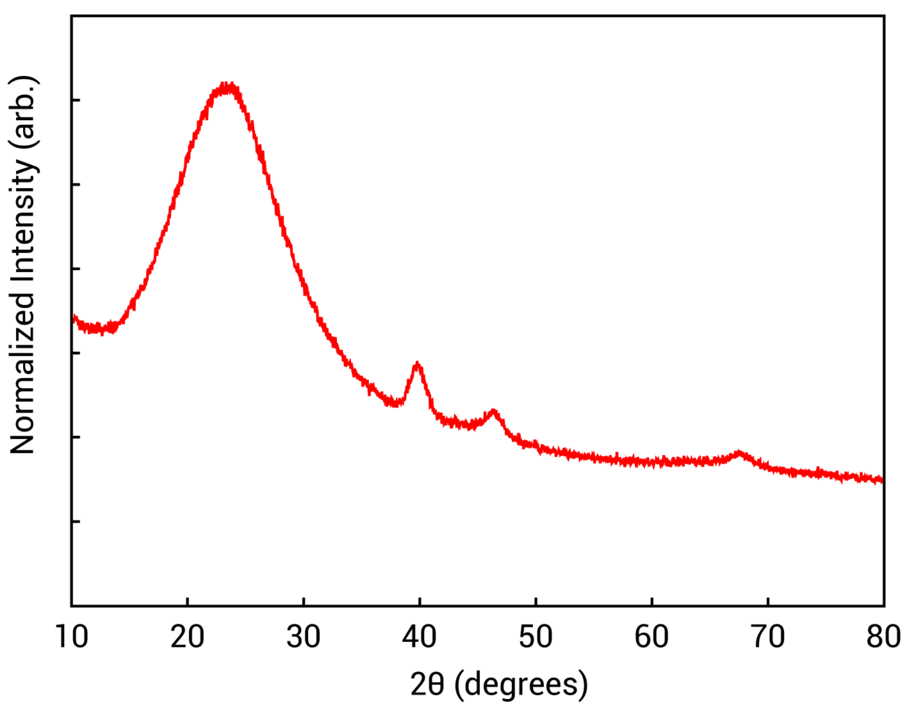

Figure S2: XRD of 1 mM H_2PtCl_6-loaded sample after calcination.

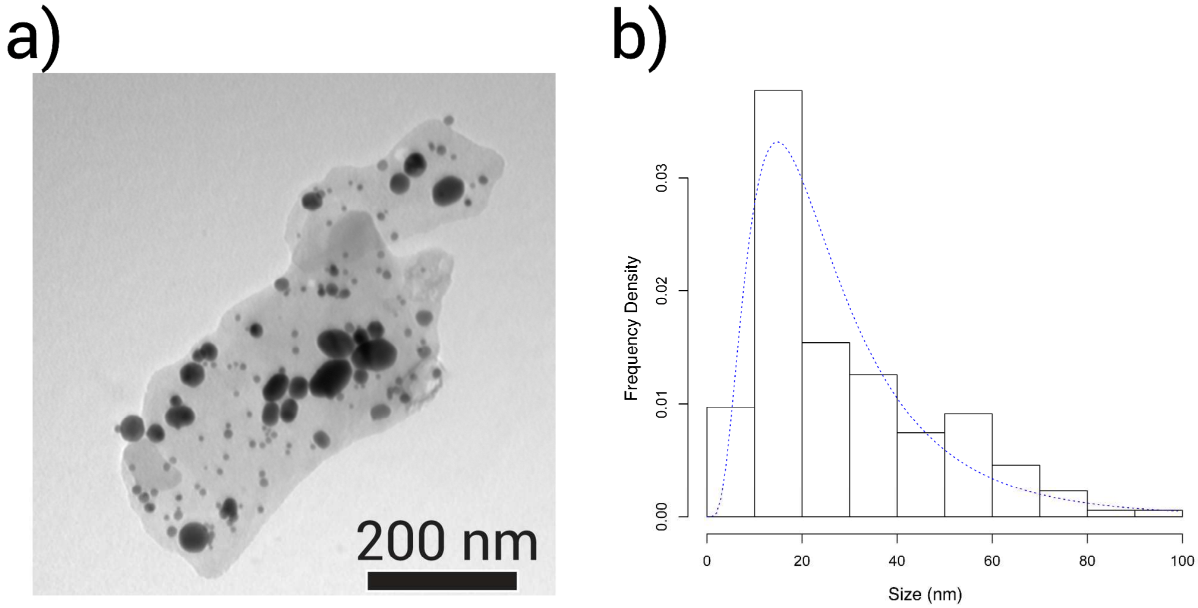

Figure S3: a) TEM of Au nanoparticles prepared by calcination at 540°C of a 1 mM-loaded $HAuCl_4$ NCC/SiO_2 composite. b) Histogram of size distribution derived from TEM analysis and lognormal density (28.2 ± 20.7 nm).

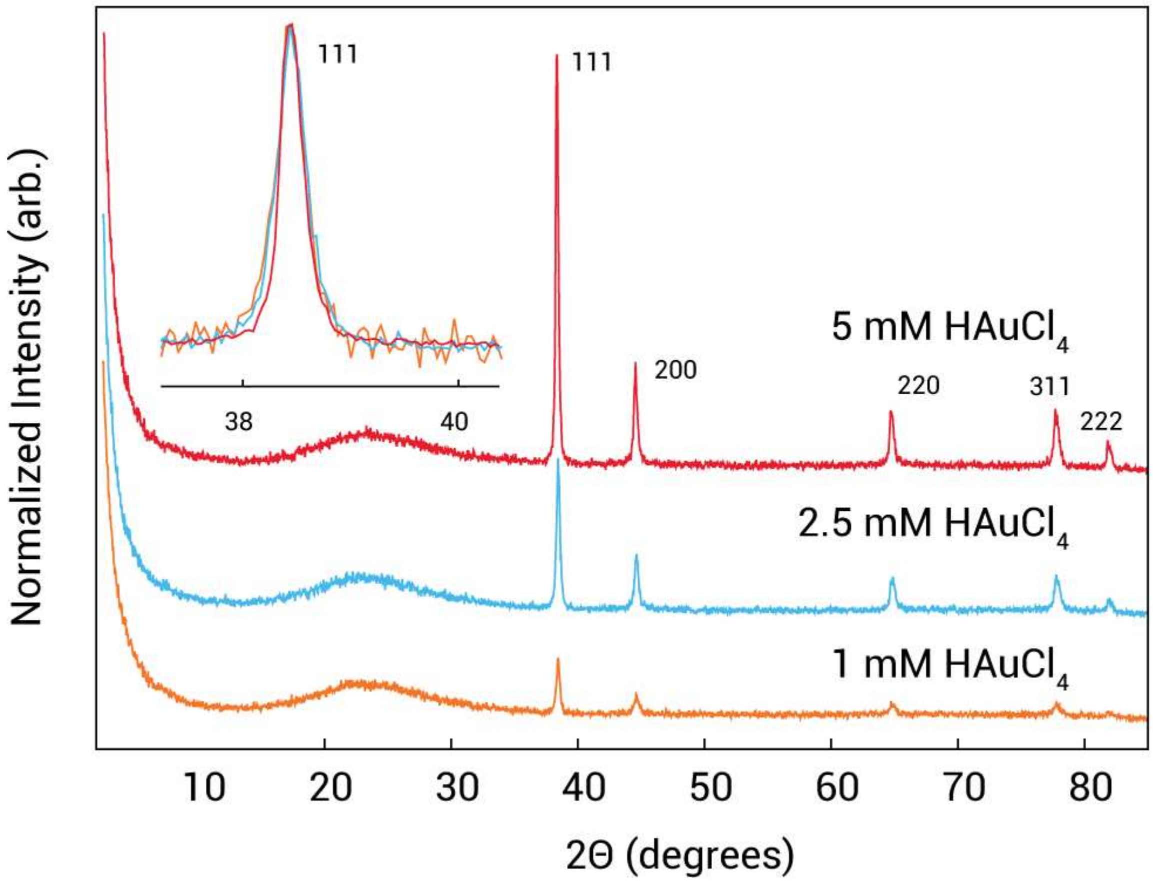

Figure S4: XRD of calcined Au-loaded SiO_2 films showing characteristic reflections of fcc Au (inset: 111 reflection).

Table S1: Comparison of Nitrogen Adsorption Data for calcined $HAuCl_4$-loaded samples. (Constant NCC/TMOS ratio in each composite-- 65 wt% NCC)

$HAuCl_4$ loading (mM)	**BET Surface Area (m^2g^{-1})**	**Pore Volume (cm^3g^{-1})**	**BJH Pore diameter (nm)[a]**
0	769	0.65	3.7
1	727	0.65	3.9
2.5	657	0.62	4.2
5	561	0.52	4.1
10	654	0.66	4.66

[a] Calculated from the adsorption branch of the isotherm.

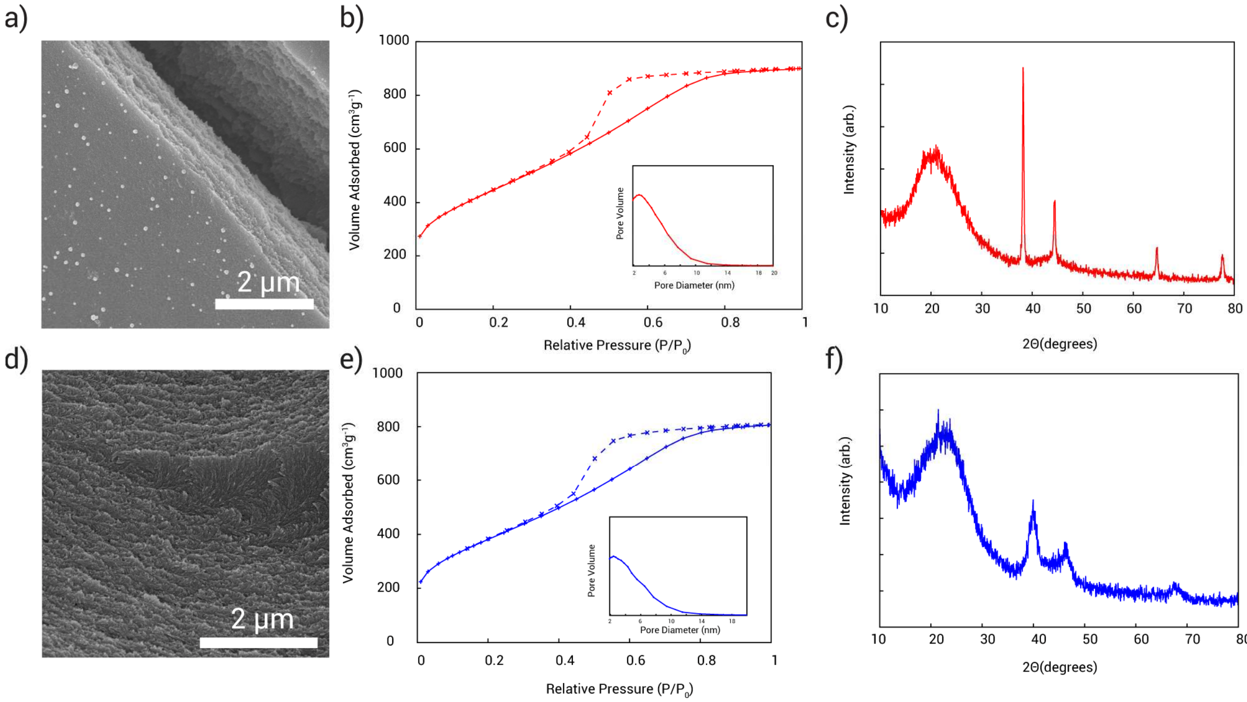

Figure S5: a) SEM of a carbonized 1 mM $HAuCl_4$-loaded film. b) N_2 isotherm and BJH pore-size distribution (inset) of a Au-loaded carbon film after etching with NaOH. c) XRD of Au-loaded carbon film showing characteristic reflections of fcc Au. d) SEM of a fractured edge of a carbonized 1 mM H_2PtCl_6 film. e) N_2 isotherm and BJH pore-size distribution (inset) of a Pt-loaded carbon film after etching with NaOH. f) XRD of Pt-loaded carbon film showing characteristic reflections of fcc Pt.

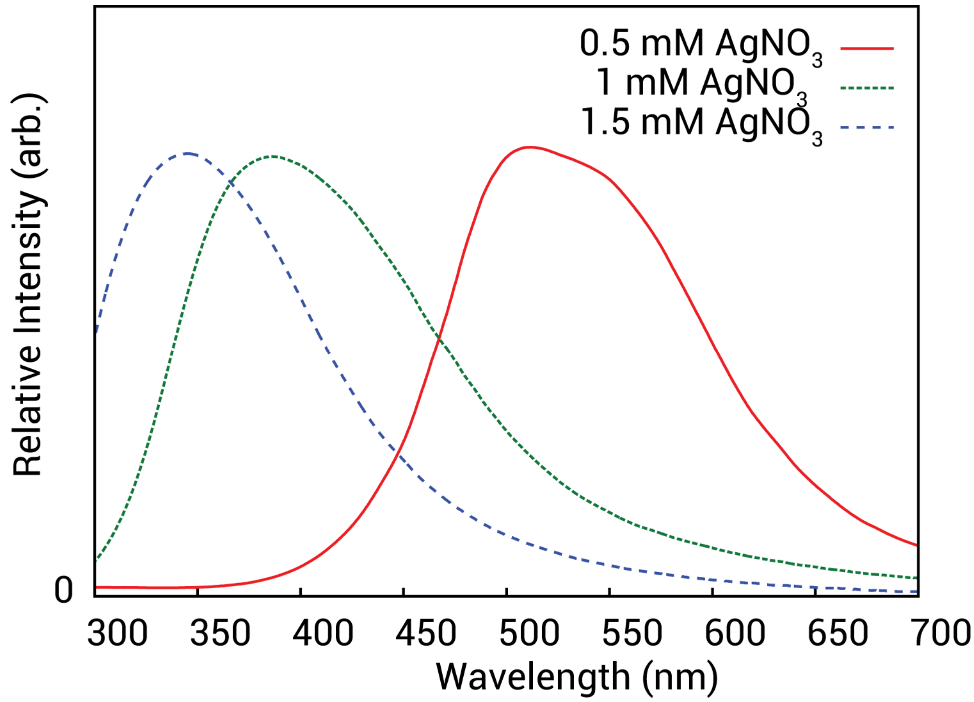

Figure S6: CD spectra of dry Ag nanoparticle-decorated films prepared from varying loadings of $AgNO_3$.