

Templated Block Copolymer Network Thin Films as 3D Chiral Optical Metamaterials: Connecting Finite-Difference Time-Domain and Self-Consistent Field Theory Simulations

Emily K. McGuinness, Benjamin R. Magruder, Pengyu Chen, Kevin D. Dorfman, Christopher J. Ellison, Vivian E. Ferry

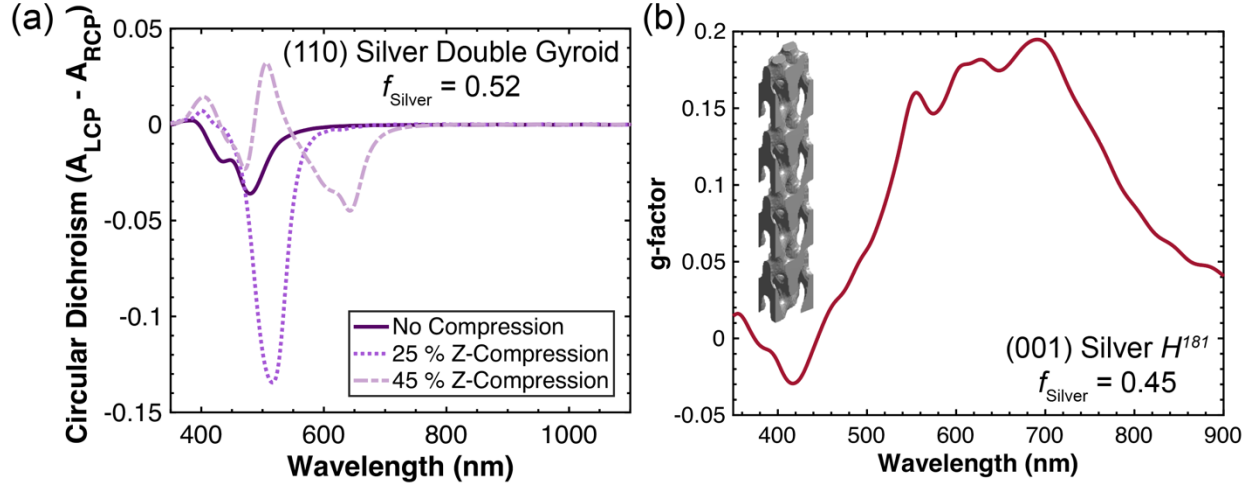


Figure 1. (a) Circular dichroism spectra of (110) oriented silver double gyroid thin films (0.52 volume fraction) without compression (solid) and compressed 25 (dotted) and 45 % (dashed) in the direction normal to the substrate with volume conserved (surface termination of 0.19). (b) G-factor (CD normalized to average absorption) of silver templated H^{181} block copolymer network morphology (volume fraction of 0.45) oriented in the (001) with a surface termination of 0.42.

Funding Acknowledgement: This work was supported primarily by the National Science Foundation through the University of Minnesota MRSEC under Award No. DMR-2011401. Additionally, Emily K. McGuinness was supported through the eFellows Engineering Postdoctoral Fellowship Program, funded by the National Science Foundation and administered by the American Society for Engineering Education. The authors acknowledge the Minnesota Supercomputing Institute (MSI) at the University of Minnesota for providing resources that contributed to the research results reported within this talk.