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**Circular dichroism in double layer metallic crossed-gratings** WENSHENG GAO, HO MING LEUNG, Physics Department, HKUST, YUNHUI LI, HONG CHEN, Pohl Institute of Solid State Physics, Tongji University, Shanghai, WINGYIM TAM, Physics Department, HKUST — We report on the fabrication of double layer gold crossed-gratings consisting of a top convoluted layer of gold grating over a bottom gold grating using an e-beam direct write technique together with a lift-off process. The crossed-gratings exhibit, in the visible range, strong circular dichroism which is dependent upon the incident direction due to the convoluted top gold grating and also the conducting substrate. Resonance dips in the transmittance of circularly polarized light are also observed. The experimental results are explained qualitatively by simulations using a finite-integration technique. The simulations confirm that the dips in the transmittance are electromagnetic resonances corresponding to parallel and anti-parallel current flows in the crossed-gratings. (Accepted by J.Opt )

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