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Optical Transmission through Archimedeam Spiral Nanotrenches in Ti Film FENG WANG, Kent State University, XUEJIN WEN, Ohio State University, KAI SUN, University of Michigan, WU LU, Ohio State University, QIHUO WEI, Kent State University — We study the optical transmission of circularly polarized light through nanoscale Archimedean spiral trenches in Ti film through experiments and numerical simulations; the focus of these studies is on the effect of radial repetition of the spiral nanotrenches. Experimental measurements show that the left and right circularly polarized light exhibit different transmission through the spiral nanotrenches, and the transmission difference decays when the number of the radial periods of the spiral trenches is increased. Numerical simulations reproduce this interesting phenomenon. The underlying physical mechanism of the radial period dependence is attributed to the absorption difference at the center of the spirals.

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