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Photonic Band Gap and Negative Refraction in Two-dimensional Photonic Crystals with Centered Rectangular Symmetry[1] KRIS OHLINGER, Department of Physics and Geology, University of Texas-Pan American, Edinburg, TX 78539, YUANKUN LIN, Department of Physics and Geology, University of Texas-Pan American, Edinburg, Texas, 78539 — We report photonic band gaps in two-dimensional photonic crystals with centered rectangular lattices of elliptical air rods in a silicon background for both transverse electric and transverse magnetic polarizations. The calculations have revealed the existence of large complete photonic band gaps in those photonic crystals. Negative refractive behaviors have also been studied in these two-dimensional centered rectangular elliptical-rod photonic crystals.

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