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Moving the band gaps and changing the transmission of magnetic photonic crystals SHIYANG LIU, JUNJIE DU, ZHIFANG LIN, Fudan University, SIU TAT CHUI, University of Delaware — We classify different types of the photonic band gaps (PBGs) of two dimensional magnetic photonic crystals (MPCs) consisting of arrays of magnetic cylinders and study the different tunability (by an external static magnetic field) of these PBGs. One type of the band gaps comes from infinitely degenerate flat bands and is closely related to those in the study of plasmonics. We calcualte the transmission of the PBG's and found excellent agreement with the results of the photonic band structure calculation. Positional disorder of the lattice structure affects the different types of PBGs differently.

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