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**Anisotropic magnetic phases** JULIO F. FERNANDEZ, ICMA, CSIC, Zaragoza, Spain, JUAN J. ALONSO, Universidad de Malaga, Spain — We study how magnetic phases vary with uniaxial and fourfold anisotropy constants, C and D. We do this for classical magnetic dipoles on cubic lattices with dipolar and nearest neighbor exchange interactions. By mean field and by Monte Carlo calculations, results are obtained for bulk and n-layer film systems under no applied external field. We pay special attention to the spin reorientation (SR) transition. We find (1) a reentrant SR transition for a narrow range of C/D values, and (2) that the ratio of the ordering temperature to the SR temperature varies with C/D but depends rather weakly on the exchange constant.

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