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Enhancement of magnetic dipole emission at optical frequencies DANIEL EGGENA, Illinois State University, KRISHNA PANDEY, MAHUA BISWAS, Missouri State University, UTTAM MANNA, Illinois State University — In general, the magnetic dipole (MD) transition rates are orders of magnitude smaller than the electric dipole (ED) transition. As a result, the MDs interact very weakly with the magnetic field component of incident light. However, for a focused cylindrical azimuthal incident beam, the ratio of the maximum magnetic and electric field intensities can be significantly enhanced compared to a plane wave in free space. Here, we demonstrate that that the focused azimuthally polarized beam can enhance the MD emission by approximately 4 times compared to ED emission in Europium ions, which are otherwise comparable for linear excitation.

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