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Effects of plasmonic environment on electric and magnetic dipole spontaneous emission RABIA HUSSAIN, YURI BARNAKOV, NATALIA NOGINOVA, Norfolk State University — Luminescence of Eu ions was used to study effects of plasmonic environment on spontaneous emission of magnetic and electric dipoles in several nanostructured systems, including gold nanostrips, gold and silver nanomesh and thin films. Significant changes in polarization and radiation patterns were observed in the spectral range of plasmonic resonance. The effects were different for electric and magnetic dipole related transitions. The results are discussed in terms of coupling of emitters with radiative and plasmonic modes with account for losses. We also demonstrate the possibility to map the enhancement factors for magnetic and electric dipoles separately in near field optical studies.

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