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Title:Observing metamaterial induced transparency in individual Fano resonators with broken symmetry
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Abstract:Metamaterial induced transparency is demonstrated using individual split ring resonators with two gaps on opposite side. For the symmetric structure, only a low quality dipolar resonance is witnessed at a normal incidence excited with electric field along the resonator gaps. Displacement of one gap from the centre breaks the symmetry and a higher order mode, inaccessible in the symmetric structure, is excited. Coherent interaction among the modes in the split ring resonator forms an extremely sharp narrowband transparency window centred directly at the dipole resonance. Such metamaterial could facilitate coherent manipulation of terahertz signals for delay, storage, and nonlinear applications.
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