Advances in Advance: Filling Fraction Dependent Properties of Inverse Opal Metallic Photonic Crystals

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Nickel inverse opals with controlled metal filling fraction are fabricated through a combination of colloidal crystal templated electrodeposition and electropolishing (see figure). Optical measurements demonstrate that both reflection and emission are significantly modified by the photonic structure. The optical properties are truly three dimensional only at low metal filling fractions (after electropolishing).

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