

### Fabrication of titania inverse opals

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We demonstrate the fabrication of titania inverse opals. The colloidal crystals of monodisperse polymer latex spheres were used as a sacrificial template. Titania was deposited into the interstices between the colloidal spheres by chemical vapor deposition or chemical bath deposition. The filling fraction of titania was controlled by the number of deposition of titania precursor. Titania inverse opals were obtained by burning out the colloidal template at high temperatures. The prepared inverse opals of titania were characterized by SEM, TGA and XRD. The optical reflection spectra revealed a photonic band gap and was used to estimate the refractive index of titania.