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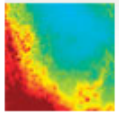
Advance online publication

3D Photonic crystals

› Letter by Takahashi *et al.*

Fabricating defect-free three-dimensional photonic crystals over a large area is a challenge that has impeded advances in this field. The development of an etching process for creating such crystals from silicon may therefore allow a broader use of these photonic structures.

Advance online publication

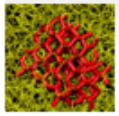


Tumor hypoxia imaging

› Letter by Zhang *et al.*

Luminescent materials are widely used for imaging and sensing because of their high sensitivity and rapid response. A strategy for modulating dual emission for radiometric sensing in a single component is now shown to enable tumour hypoxia imaging.

Advance online publication

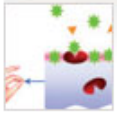


Supercool liquids

› Letter by Li *et al.*

Surfaces have an important role in solid–liquid phase transformations, but whereas melting is normally observed at surfaces, freezing usually originates in the bulk. Computational studies now predict surface-induced nucleation in supercooled liquid silicon and germanium, and the proposed nucleation mechanism could prove to be relevant for other tetrahedrally coordinated systems.

Advance online publication



Biocatalysis at a stretch

› Letter by Mertz *et al.*

Many proteins have buried active sites in their folded states, which are only exposed when the protein is stretched. On mimicking this process with a combination of enzymes buried in polyelectrolyte layers on a silicone sheet, it is shown that enzymatic catalysis is possible only when the substrate is stretched to expose the enzymes, which enables reversible control of reaction progression.

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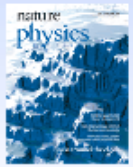

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