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TOPIC:

Phase Change Materials for use in optoelectronic applications

ABSTRACT:

The use of phase change materials such as GeSbTe alloys in non-memory applications is rare; however, given their unique properties of optical and electrical conductivity contrast between two semi-stable solid states, such optoelectronic applications can be highly exploitable in a range of applications. In this talk I shall focus on our recent work [1] that utilizes such mixed-mode properties of these devices to create extraordinarily high-resolution displays with colour modulation using thin films much thinner than the wavelength of light. I will also show that such materials can be utilized in hitherto unexplored applications including all-photonic memories and arithmetic processors [2].

[1] Hosseini et al, Nature (2014).
[2] Rios et al, Adv. Mater. (2014).

PROFILE:

Harish Bhaskaran is presently Associate Professor of Materials at Oxford. Prior to joining Oxford, he was a Senior Lecturer at the University of Exeter. He completed the PhD in Mechanical Engineering from the University of Maryland, College Park in 2006 under the guidance of Keith Schwab. He holds an EPSRC Fellowship in Manufacturing and currently leads the Advanced Nanoscale Engineering Group at Oxford.