

Colloquium

Halide Perovskites open a new window on Materials

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While nearly all types of photovoltaic (PV) technologies show amazing development, most research attention focuses on Halide Perovskites (HaPs) cells. I will focus on the materials themselves.

HaPs have (very) low defect densities, which we suggest to be related to our discovery that they can (self) repair electronic defects, something that in inanimate materials involves thermodynamics.

Starting from what lies at the basis of this finding we generalize to a counter-intuitive idea: the main cause for such healing and for the low densities of (static) defects in HaPs is a very small reaction free energy that just stabilizes the materials against decomposition.

As those low defect densities explain the remarkable optoelectronic properties of these materials, this finding is of more than academic interest.

Reference:

1. cf. Rakita, Lubomirsky, DC, Mater. Hor. 6, 1297 (2019); Egger et al., Adv. Mater. 1800691 (2018)

Tuesday, Dec 24th 2019

4:00 PM (Tea/Coffee at 3:30 PM)

Auditorium, TIFR-H