Progress in chromogenics: New results for electrochromic and thermochromic materials and devices

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Abstract

Chromogenic device technology can be used to vary the throughput of visible light and solar energy for windows in buildings as well as for other see-through applications. The technologies can make use of a range of "chromic" materials – such as electrochromic, thermochromic, photochromic, etc – either by themselves or in combinations. The first part of this paper points at the great energy savings that can be achieved by use of chromogenic technologies applied in the built environment, and that these savings can be accomplished jointly with improved indoor comfort for the users of the building. Some recent data are presented on a foil-type electrochromic device incorporating tungsten oxide and nickel oxide. In particular, we consider the possibilities of controlling the near-infrared transmittance and optimize this property for specific climates. To that end we discuss Au-based transparent conductors for electrochromics as well as high-transmittance thermochromic multilayer films incorporating VO_2 and TiO_2.

Keywords

Chromogenics;
Electrochromic;
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