

Dielectric/metal/dielectric structures using copper as metal and MoO₃ as dielectric for use as transparent electrode

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Auteur	P�rez Lop�z, I. [1], Cattin, Linda [2], Nguyen, M T [3], Morsli, Mustapha [4], Bern�de, Jean Christian [5]
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R�sum� en anglais	Transparent conductive oxide/metal/oxide, where the oxide is MoO ₃ and the metal is Cu, is realized and characterized. The films are deposited by simple joule effect. It is shown that relatively thick Cu films are necessary for achieving conductive structures, what implies a weak transmission of the light. Such large thicknesses are necessary because Cu diffuses strongly into the MoO ₃ films. We show that the Cu diffusion can be strongly limited by sandwiching the Cu layer between two Al ultra-thin films (1.4 nm). The best structures are glass/MoO ₃ (20 nm)/Al (1.4 nm)/Cu (18 nm)/Al (1.4 nm)/MoO ₃ (35 nm). They exhibit a transmission of 70% at 590 nm and a resistivity of $5.0 \cdot 10^{-4} \Omega \text{ cm}$. A first attempt shows that such structures can be used as anode in organic photovoltaic cells.
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