



Efficient hole-transporting layer MoO₃:CuI deposited by co-evaporation in organic photovoltaic cells

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Auteur	Barkat, L. [1], Hssein, Mehdi [2], El Jouad, Zouhair [3], Cattin, Linda [4], Louarn, Guy [5], Stephant, Nicolas [6], Khelil, Abdelbacet [7], Ghamnia, Mostefa [8], Addou, Mohammed [9], Morsli, Mustapha [10], Bernède, Christian [11]
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Résumé en anglais	<p>In order to improve hole collection at the interface anode/electron donor in organic photovoltaic cells, it is necessary to insert a hole transporting layer. CuI was shown to be a very efficient hole transporting layer. However, its tendency to be quite rough tends to induce leakage currents and it is necessary to use a very slow deposition rate for CuI to avoid such negative effect. Herein, we show that the co-deposition of MoO₃ and CuI avoids this difficulty and allows deposition of a homogeneous efficient hole-collecting layer at an acceptable deposition rate. Via an XPS study, we show that blending MoO₃:CuI improves the hole collection efficiency through an increase of the gap state density. This increase is due to the formation of Mo5p following interaction between MoO₃ and CuI. Not only does the co-evaporation process allow for decreasing significantly the deposition time of the hole transporting layer, but also it increases the efficiency of the device based on the planar heterojunction, CuPc/C₆₀.</p>
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Liens

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- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=38242>
- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=21424>
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