



## Broadening of the transmission range of dielectric/metal multilayer structures by using different metals

Submitted by Christian Bernède on Thu, 06/04/2015 - 16:24

Titre	Broadening of the transmission range of dielectric/metal multilayer structures by using different metals
Type de publication	Article de revue
Auteur	Mouchaal, Y [1], Louarn, Guy [2], Khelil, A [3], Morsli, Mustapha [4], Stephant, Nicolas [5], Bou, Adrien [6], Abachi, Tahar [7], Cattin, Linda [8], Makha, Mohammed [9], Tochio, P [10], Bernède, Jean Christian [11]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2015
Langue	Anglais
Pagination	32-41
Volume	111
Titre de la revue	Vacuum
ISSN	0042-207X
Mots-clés	Indium free transparent electrode [12], Metal bilayer [13], Transmission Multi-layer structures [14], Vacuum deposition [15]
Résumé en anglais	ZnS/M12/ZnS structures, with M12 $\frac{1}{4}$ Ag, Cu or Cu/Ag, were deposited under vacuum by simple joule heating effect (sublimation or evaporation). The optimum thicknesses of the different layers were experimentally determined: 50/45 nm for ZnS, 11 nm for Ag, 16 nm for Cu and 3 nm/9 nm for Cu/Ag. The presence of the double metal Cu/Ag interlayer induces a significant broadening of the optical transmittance spectrum of these structures. The properties of the structures depend strongly on deposition rate of the different films. When the deposition rates of ZnS, Cu are 0.15 nm/s and 0.30 nm/s for Ag, the averaged transmission, between 400 nm and 1000 nm is 85% while the sheet resistance is $5.0 \pm 0.2 \Omega/\text{sq}$ . These performances allow achieving an averaged factor of merit $\Phi M$ , between 400 nm and 700 nm, of $70 \times 10^{-3} \Omega^{-1}$ . This averaged value tends toward those usually achieved by transparent conductive oxides.
URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua12254">http://okina.univ-angers.fr/publications/ua12254</a> [16]
DOI	10.1016/j.vacuum.2014.09.013 [17]
Lien vers le document	<a href="http://dx.doi.org/10.1016/j.vacuum.2014.09.013">http://dx.doi.org/10.1016/j.vacuum.2014.09.013</a> [17]

### Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=21444](http://okina.univ-angers.fr/publications?f[author]=21444)
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=21361](http://okina.univ-angers.fr/publications?f[author]=21361)
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=21395](http://okina.univ-angers.fr/publications?f[author]=21395)

- [4] [http://okina.univ-angers.fr/publications?f\[author\]=3570](http://okina.univ-angers.fr/publications?f[author]=3570)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=4109](http://okina.univ-angers.fr/publications?f[author]=4109)
- [6] [http://okina.univ-angers.fr/publications?f\[author\]=21421](http://okina.univ-angers.fr/publications?f[author]=21421)
- [7] [http://okina.univ-angers.fr/publications?f\[author\]=21389](http://okina.univ-angers.fr/publications?f[author]=21389)
- [8] [http://okina.univ-angers.fr/publications?f\[author\]=3568](http://okina.univ-angers.fr/publications?f[author]=3568)
- [9] [http://okina.univ-angers.fr/publications?f\[author\]=21392](http://okina.univ-angers.fr/publications?f[author]=21392)
- [10] [http://okina.univ-angers.fr/publications?f\[author\]=21452](http://okina.univ-angers.fr/publications?f[author]=21452)
- [11] <http://okina.univ-angers.fr/c.bernede/publications>
- [12] [http://okina.univ-angers.fr/publications?f\[keyword\]=18148](http://okina.univ-angers.fr/publications?f[keyword]=18148)
- [13] [http://okina.univ-angers.fr/publications?f\[keyword\]=18150](http://okina.univ-angers.fr/publications?f[keyword]=18150)
- [14] [http://okina.univ-angers.fr/publications?f\[keyword\]=18149](http://okina.univ-angers.fr/publications?f[keyword]=18149)
- [15] [http://okina.univ-angers.fr/publications?f\[keyword\]=4974](http://okina.univ-angers.fr/publications?f[keyword]=4974)
- [16] <http://okina.univ-angers.fr/publications/ua12254>
- [17] <http://dx.doi.org/10.1016/j.vacuum.2014.09.013>

Publié sur *Okina* (<http://okina.univ-angers.fr>)