

Liquid crystal properties and TSDC measurements of a series of organometallic palladium and platinum complexes

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A series of *ortho*-metallated Pd and Pt complexes containing the Schiff base α -(4-cyanobiphenyl-4'-yloxy)- ω -(4-n-decyloxyanilinebenzylidene-4'-oxy)hexane (1, 2) and N-benzoyl thiourea derivatives were prepared and investigated for their liquid crystalline properties. Their structures were assigned based on elemental analysis, IR and ¹H NMR spectroscopy, single – crystal X-ray diffraction, while the thermal properties were investigated by DSC and polarising optical microscopy. Previous use of these derivatives as co-ligands in company of *ortho*-palladated imine fragment led to the destabilisation of the mesogenic behaviour of these complexes (3). All compounds show liquid crystal properties with nematic and smectic A phases being displayed, with the mesomorphic behaviour strongly related to the type of co-ligand as well as the metal center used. The TSDC method was employed to determine the conduction mechanism, phase transition temperatures and the activation energies for several palladium complexes.

References

- (1) G.S. Attard, R.W. Date, C.T. Imrie, G.R. Luckhurst, S.J. Roskilly, J.M. Seddon, L. Taylor, *Liq. Cryst.*, **1994**, *16*, 529.
- (2) J.L. Hogan, C.T. Imrie, G.R. Luckhurst, *Liq. Cryst.*, **1988**, *3*, 645.
- (3) A.C. Tenchiu, M. Iliș, F. Dumitrașcu, A.C. Whitwood, V. Cîrcu, *Polyhedron*, **2008**, *27*, 3537.

Acknowledgements

Financial support from MEdC (Romanian Ministry of Education, Project PNII ID_954 and ID_123) is acknowledged gratefully.