

**Title:** Synthesis and structural characterization of new piano-stool ruthenium(II) complexes bearing 1-butylimidazole heteroaromatic ligand

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**Abstract:** New cationic ruthenium(II) complexes with the formula  $[Ru(\eta^5-C_5H_5)(LL)(1-Bulm)] [Z]$ , with  $(LL) = 2PPh_3$  or DPPE, and  $Z = CF_3SO_3^-$ ,  $PF_6^-$ ,  $BPh_4^-$ , have been synthesized and fully characterized. Spectroscopic and electrochemical studies revealed that the electronic properties of the coordinated 1-butylimidazole were clearly influenced by the nature of the phosphane coligands (LL) and also by the different counter ions. The solid state structures of the six complexes determined by X-ray crystallographic studies, confirmed the expected distorted three-legged piano stool structure. However the geometry of the 1-butylimidazole ligand was found considerably different in all six compounds, being governed by the stereochemistry of the mono and bidentate coligands ( $PPh_3$  or DPPE). (C) 2012 Elsevier B.V. All rights reserved.

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