

## Recent Advances in Coordination Chemistry of Heterocyclic Di- and Tetrakisphosphine Ligands

Andrey A. Karasik

*Arbuzov Institute of Organic and Physical Chemistry, FRC Kazan Scientific Center, Russian Academy of Sciences, Arbuzov str., 8, 420088, Kazan, Russia  
e-mail: karasik@iopc.ru*

During the last two decades heterocyclic diphosphines, mainly 1,5-diaza-3,7-diphosphacyclooctanes, attracted a considerable attention as an efficient ligand platform for construction effective Ni and Co catalysts for the basic reactions of hydrogen interconversion, as well as for other crucial processes of small molecules (CO<sub>2</sub> and N<sub>2</sub>). The other area of application of that kind of ligands is a design of novel “stimuli responsive” luminescent complexes of d<sup>10</sup>-metals (Au, Ag and Cu).

Recently a noticeable progress in the understanding of behavior specificity of the heterocyclic aminomethylphosphines on the transition metal template has been achieved. It has been demonstrated that ligands in the course of complex formation undergo isomerization [1], splitting on the smaller [2] or copulation to the bigger [3] rings according to the transition metal geometry. The special role of intermolecular interactions for the corresponding d<sup>10</sup>-metal complexes in the enhancement of the luminescent response to external stimuli (analyte molecules,[4] counter ions,[5] temperature,[6] and pH.[7]) was shown. Novel knowledge is useful for rational design of catalysts and luminescent materials for biomedical applications.[5,8]

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### References

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