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BOOK OF ABSTRACTS

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TRI- AND DI-NUCLEAR PALLADIUM COMPLEXES STABILIZED BY BRIDGING η^2-C=N COORDINATION OF Ar-BIAN LIGANDS

Francesco Ferretti,[1] **Andrea Dariol**,[1] **Fabio Ragaini**,[1] **Piero Macchi**[2]

[1] *Università degli Studi di Milano, Dipartimento di Chimica, via C. Golgi 19, 20133, Milano, Italy*
[2] *Dipartimento di Chimica, Materiali e Ingegneria Chimica, Politecnico di Milano, V. Mancinelli 7, Milano, Italy*
francesco.ferretti@unimi.it

Ar-BIAN (bis(arylimino)acenaphthene) Schiff bases are well-known ligands for both transition and main group metals due to their rigid structure, which ensures optimal geometry for chelation and enhances compound stability against hydrolysis and central C–C bond cleavage. The treatment of palladium acetate with a reduced form of the ligands, Ar-BIANH$_2$,[1-2] results in the reduction of Pd(II) to Pd(0) and coordination of the Ar-BIAN to the metal center. Complexes of the formula [Pd(Ar-BIAN)(η^2-olefin)] are obtained in the presence of a strongly electron poor olefin, while in its absence, this reaction yields a trinuclear palladium complex, which represents the first example of a Pd(0) compound stabilized solely by nitrogen ligands. X-ray crystallography reveals that each palladium atom is coordinated in a standard κ^2-N chelating mode to an Ar-BIAN ligand and in an η^2 coordination to the C=N double bond of a neighboring Ar-BIAN ligand. This unique bonding motif links three Pd(Ar-BIAN) units into a cyclic trimeric structure (Figure1).
Additionally, a mixed-valence dinuclear Pd complex was isolated, featuring a [Pd(Ar-BIAN)]^0 fragment bridged to a [Pd^{II}(Ar-BIAN)X$_2$] unit via a similar η^2 coordination of the iminic bond.
These findings highlight an unusual mode of palladium stabilization via η^2(C=N) bridging in both trimeric and dinuclear complexes supported exclusively by Ar-BIAN ligands.

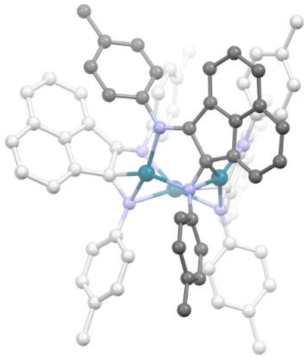

***Figure 1**: X-ray structure of [Pd(Tol-BIAN)]$_3$*

Overall, the complex has a propeller shape, with the six aryl rings divided into two inequivalent groups. Other complexes have also been obtained showing unusual structures and their synthesis will be described.

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