

Single, double, and triple intercluster bonds: Analyses of $M_2Au_{36}(SR)_{24}$ ($M = Au, Pd, Pt$) as 14-, 12- and 10-ve superatomic molecules

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The bonding picture of the experimentally characterized species derived from the $M_2Au_{36}(SR)_{24}$ cluster is discussed to indicate the occurrence of the classical notion of single, double and triple chemical bonds. The bond order can be reversibly controlled by tuning their charge states which is shown to be opportunely extended to clusters in favor of the conception of molecularly structured materials. © The Royal Society of Chemistry 2019.