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**Model for ferromagnetic behavior of metal cluster-fullerene superatomic solids.** PALLABI SUTRADHAR, VIKAS CHAUHAN, SHIV KHANNA, JAYASIMHA ATULASIMHA , Virginia Commonwealth Univ — Recent work has explored the precise assembly of binary superatomic solids from metal clusters and fullerene [1] as well as experimentally demonstrated ferromagnetic behavior in such assemblies at low temperatures (less than 10K). However, the origin of this behavior is not yet completely understood and modeled rigorously. We report theoretical analyses and simulations that explain the origin of ferromagnetic behavior from super exchange mechanism and model the temperature dependent magnetic behavior of these superatomic solids. [1] X. Roy et al., Science, 341, 157, 2013. [2] C.H. Lee et al., J. Am. Chem. Soc. 136, 16926, 2014.

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