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*Super Central Configurations and the Number of Central Configurations Under Geometric Equivalence*

Let the configuration $q = (q_1, q_2, \cdots, q_n)$ be a central configuration of $n$-body for masses $m = (m_1, m_2, \cdots, m_n)$. The central configuration $q$ for $m$ is called a super central configuration if $q$ is also a central configuration for masses $\tilde{m}$ which is a permutation of $m$ and $m \neq \tilde{m}$. Let $p$ and $q$ be two central configurations for $m$. Then we call $p$ and $q$ geometrically equivalent if they differ by a rotation followed by a scalar multiplication as well as by a permutation of bodies. In this talk, we discuss how the existence of super central configurations decreases the number of central configurations under geometric equivalence.