

ON CENTRAL CONFIGURATIONS FOR 4 AND 5 BODIES

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The 6th Smale problem for the XXI century is about finiteness of planar central configurations for any combinations of positive masses. The problem was first posed by Chazy in 1918, then by Wintner in 1941. Hampton-Moeckel in 2004 gave a computer assisted proof of finiteness for 4 bodies. We show that the number of central configurations of the 5 body problem is finite, except perhaps if masses certain algebraic relations. We also give a purely analytic proof of Hampton-Moeckel result for 4 bodies. This is a joint work with Alain Albouy.