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Martha Alvarez-Ramírez* (mar@xanum.uam.mx), **Esther Barrabés**, **Mario Medina** and **Mercé Ollé**. *Ejection-Collision orbits in the symmetric collinear four-body problem*. Preliminary report.

We consider a collinear symmetric four-body problem, in which four masses m_2 , m_1 , m_1 and m_2 are in collinear configuration and ordered from left to right, and move symmetrically about the center of mass. The problem has been studied by different authors. Sweatman (2002) carried out a wide numerical exploration, showing different type of orbits: a Shubart-like periodic orbit, quasiperiodic orbits and scattering orbits. In 2004, Sekiguchi and Tanikawa explored, for the case of equal masses, the global geometry of the phase space via a suitable Poincaré map. Later, Alvarez-Ramírez et al. (2015) studied analytically the quadruple collision, as well as the infinity, by means of the McGeehe's techniques. We will show how the study of the invariant manifolds associated to the equilibrium points inside the collision manifold allow us to complete the previous works. In particular, we will focus on the orbits that tend forwards and backwards in time to the quadruple collision. (Received September 23, 2017)