1125-35-1394 **Suleyman Ulusoy*** (ulusoy77@gmail.com), Gulluk Mah, Koru Sok, no 7, 54100 Sakarya, Turkey. *On Nonlocal Keller-Segel Type Equations.*

We analyze an equation that is gradient flow of a functional related to Hardy-Littlewood-Sobolev inequality in whole Euclidean space $\mathbb{R}^d, d \geq 3$. Under the hypothesis of integrable initial data with finite second moment and energy, we show local-in-time existence for any mass of "free-energy solutions", namely weak solutions with some free energy estimates. We exhibit that the qualitative behavior of solutions is decided by a critical value. The motivation for this work is to generalize Keller-Segel model to higher dimensions. (Received September 16, 2016)