Clogging of active particles in disordered media

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There has been tremendous growth in interest in the systems that are known as active matter, where the individual units are guided by very simple rules but they show a very rich phenomenology. Examples of such systems include swimming bacteria , flocking or swarming. There are also non-living examples, such as self-driven colloids or microswimmers. In this work we have focused in the study of one of the simplest and well-known models in active matter , Active Brownian Particles (ABP).We examine the collective behavior of set of dry self-propelled particles in a disordered landscape under the effect of an external field. We study numerically the different phases that the system exhibits and the characteristic dynamics of the particles movement. Mainly, the system behavior is represented by the flow caused by the external field, but with a repulsive interaction between particles we find the presence of a clogged phase in which that flow is disabled. We present how the different parameters of the system, such as the persistence length and the ratio between self-propulsion and external field play an important role to avoid the very dense disordered media.