The amoebot model (Derakhshandeh et al., SPAA 2014) is a well-studied model for programmable matter. Most of the literature deals with the geometric amoebot model, a two-dimensional variant of the model in which the particles are placed on the infinite triangular grid graph. Gastineau et al. introduced a three-dimensional variant of the amoebot model where the underlying graph is the face-centered cubic grid and proposed two leader election algorithms for this model. Briones et al. improved on these results and proposed a deterministic leader election algorithm which works for configurations without holes.

In this talk, I will present a deterministic leader election algorithm for the 3D amoebot model that works on arbitrary connected configurations.