1118-22-184 **Ilia Smilga*** (ilia.smilga@normalesup.org). *Free affine groups acting properly discontinuously.* Preliminary report.

In 1983, Margulis found an example of a free group of affine transformations (Zariski-dense in $\mathrm{SO}(2,1) \ltimes \mathbb{R}^3$) acting properly discontinuously on the affine space $\mathbb{R}^3$. Since then, only a few other examples have been found. We are going to present a possible way to classify possible Zariski closures of such groups. Given a real semisimple group G and a representation ρ of G on a vector space V, there seems to be a simple algebraic criterion on ρ that allows one to decide whether the affine group $G \ltimes V$ has a Zariski-dense free subgroup acting properly discontinuously. (Received January 31, 2016)