999-20-156 **Talia Fernos*** (`talia@math.uic.edu`), 322 SEO m/c 249, 851 S. Morgan St., Chicago, IL 60607-7045. *New examples of group pairs with Kazhdan's Relative Property (T).*

Relative property (T) has recently been rediscovered as a useful property in its own right. S. Popa (2004) used relative property (T) to construct examples of II_1 factors with rigid Cartan subalgebra inclusion. A. Navas (2004) showed that relative property (T) group pairs acting on the circle by C^2 diffeomorphisms are trivial, in a suitable sense.

The scarcity of examples of group pairs with relative property (T) motivated the following:

Theorem: *Let Γ be a finitely generated group. If there exists a homomorphism $\phi : \Gamma \to \mathrm{SL}_n(\mathbb{R})$ such that the Zariski-closure (over $\mathbb{R}$) of $\phi(\Gamma)$ is nonamenable then there exists a discrete Abelian group A of finite $\mathbb{Q}$-rank such that Γ acts on A by automorphisms and the corresponding group pair $(\Gamma \ltimes A, A)$ has relative property (T).*

The proof is constructive. The main ingredients are Furstenberg's celebrated lemma about invariant measures on projective spaces and the spectral theorem for the decomposition of unitary representations of Abelian groups. Methods from algebraic group theory, such as the restriction of scalars functor, are also employed. (Received August 22, 2004)