

# On relative property (T) and Haagerup's property

Adrian Ioana, Department of Mathematics 253-37, Caltech, Pasadena, CA  
91125

*Abstract.* Consider the following three properties for countable discrete groups  $G$ : (1)  $G$  has an infinite subgroup with relative property (T), (2) the group von Neumann algebra  $L(G)$  has a diffuse von Neumann subalgebra with relative property (T) and (3)  $G$  does not have Haagerup's property. It is clear that (1) implies (2) and (2) implies (3). I will prove that both of the converses are false. This is joint work with Ionut Chifan.