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**Corey Bregman\*** ([cjb5@rice.edu](mailto:cjb5@rice.edu)), Department of Mathematics MS-136, Rice University, 6100 Main St., Houston, TX 77005. *Isometries of cube complexes and the Torelli subgroup for a right-angled Artin group.*

Let  $G$  be a right-angled Artin group and let  $\text{Out}(G)$  be its outer automorphism group. The Torelli subgroup of  $\text{Out}(G)$  is the kernel of the action of  $\text{Out}(G)$  on the abelianization of  $G$ . Recently, Charney-Stambaugh-Vogtmann constructed an outer space for a subgroup of  $\text{Out}(G)$ , whose vertices correspond to certain cube complexes called blow-ups of Salvetti complexes. Using this outer space, we present a geometric proof that the Torelli subgroup of  $\text{Out}(G)$  is torsion-free. The proof relies on understanding the combinatorial geometry of blow-ups of Salvetti complexes. (Received September 21, 2015)