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**Emily R Stark\*** (stark@math.utah.edu) and **Daniel J Woodhouse**  
(daniel.woodhouse@mail.mcgill.edu). *Action rigidity for free products of hyperbolic manifold groups.*

The relationship between the large-scale geometry of a group and its algebraic structure can be studied via three notions: a group's quasi-isometry class, a group's abstract commensurability class, and geometric actions of a group on proper geodesic metric spaces. A common model geometry for groups  $G$  and  $G'$  is a proper geodesic metric space on which  $G$  and  $G'$  act geometrically. A group  $G$  is action rigid if every group  $G'$  that has a common model geometry with  $G$  is abstractly commensurable to  $G$ . For example, a closed hyperbolic  $n$ -manifold group is not action rigid for all  $n$  at least three. We show that free products of closed hyperbolic manifold groups are action rigid. Consequently, we obtain the first examples of Gromov hyperbolic groups that are quasi-isometric but do not virtually have a common model geometry. This is joint work with Daniel Woodhouse. (Received September 01, 2019)