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**Hannah Schwartz\*** (hschwartz@brynmawr.edu). *Using 2-torsion to obstruct topological isotopy.*

Two knots in  $S^3$  are ambiently isotopic if and only if there is an orientation preserving automorphism of  $S^3$  carrying one knot to the other. In this talk, we will examine a family of smooth 4-manifolds in which the analogue of this fact does *not* hold, i.e. each manifold contains a pair of smoothly embedded, homotopic 2-spheres that are related by a diffeomorphism, but not smoothly isotopic. In particular, the presence of 2-torsion in the fundamental groups of these 4-manifolds can be used to obstruct even a topological isotopy between the 2-spheres; this shows that Gabai's recent "4D Lightbulb Theorem" does not hold without the 2-torsion hypothesis. (Received September 04, 2018)