

BI-CO MATHEMATICS COLLOQUIUM

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" Recognizing Your Good Friends the Right-angled Coxeter Groups"

Monday, February 20, 2017

Talk at 4:00 – H109

Tea at 3:30 – KINSC Math Lounge, H208

Abstract:

In group theory, one of the most basic problems is the isomorphism problem: Given presentations for two groups G and H , is there any algorithm that can always tell when G and H are actually the same group (isomorphic)? The answer to this question is famously "no", but we can sometimes solve it for some "nice" restricted classes of groups. Right-angled Coxeter groups (RACG) are exactly such a class that arise from using the structure of a graph (vertices and edges) to encode the properties of a nice class of groups. Given any graph, there is always a RACG that corresponds to it. But can we go the other way? What if we're given an arbitrary presentation of a finitely presented group. Is there any procedure that "recognizes" this group as isomorphic to a RACG? The answer turns out to be "yes"! (With a few caveats...but aren't there always?). This is joint work with Andy Eisenberg, Kim Ruane, and Adam Piggott. The talk should be accessible to any undergraduate who has taken (or is taking) a first course in Groups.

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