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**James B Wilson\*** ([james.wilson@colostate.edu](mailto:james.wilson@colostate.edu)), Department of Mathematics, Colorado State University, 101 Weber Building, Fort Collins, CO 80523. *Coordinatizing groups with Lie tensor products*. Preliminary report.

We show how to recognize that an abstractly presented group is a group of matrices and recover its commutative ring of coordinates. Thus, automorphisms of parabolic algebraic and arithmetic groups can be described using ideal class groups and Picard groups of the coordinate ring. Critical to our method is the construction of tensor products over Lie algebras (rather than associative rings). That sets off a cascade of new tools and results. (Received March 11, 2017)