

1145-VL-2780 **Cailin Foster*** (cailin.foster@dixie.edu), UT. *On a software accessible database of faithful representations of Lie algebras.*

The vital role of Lie theory and representation theory in modern sciences such as gravitational and quantum physics is well established. More applications of these theories can be found in recent developments in quantum computing, nonlinear network problems, robotics, radar design, spectroscopy, and many other areas. The classification of low-dimensional Lie algebras and their representations will therefore remain important for modern innovations well into the future. The paper *Representations of Codimension One Non-Abelian Nilradical Lie Algebras* by Gerard Thompson and Mahmoud Rawashdeh gives faithful representations for indecomposable six-dimensional Lie algebras. We briefly review these results and discuss our creation of a Maple database of Lie algebras, their representations, and right-invariant vector fields. The database will be distributed as part of a popular Maple package called *DifferentialGeometry* for the use of researchers in various fields. (Received September 25, 2018)