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Wilmington, Wilmington, NC 28403. *The Lie Symmetries of the Vaidya Equations.*

We present the symmetries of the Vaidya equations, which arises in the study of the gravitational field in the exterior of a radiating, spherically symmetric star. The determination of symmetries of nonlinear partial differential equations typically leads to the need to integrate a large system of determining equations for the infinitesimals of the group. In recent years algorithms, which reduce these systems of overdetermined PDEs into a standard involutive form, have been introduced and automated using a variety of symbolic software. We present the Lie point symmetries of the Vaidya equation and discuss some of the problems faced in computing them. (Received October 03, 2000)