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Evelyn Leigh Crofts* (ecrofts@berkeley.edu), 1771 Highland Pl APT 308, Berkeley, CA 94709, and **Darren Ong**. *The Lie Symmetry Groups of Minimal Surfaces*.

Sophus Lie made the profound and far-reaching discovery that all the methods used to solve systems of differential equations are in fact special cases of a general integration procedure based on the invariance of the system under a continuous group of symmetries. We apply his technique to the study of minimal surfaces (surfaces with zero mean curvature embedded in \mathbb{R}^3). Using a Weierstrass-Enneper representation to derive a system of partial differential equations, Lie analysis then produces a continuous group of symmetries that keeps the mean curvature of the minimal surface invariant. We thus discover how several families of distinct minimal surfaces are related through continuous deformation. (Received September 13, 2007)