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Tucker Andrew Hartland* (tucker.hartland@gmail.com), 249 West 11th St., Chico, CA 95928, and **Vladimir Rosenhaus**. *Infinite Symmetry Algebras of Partial Differential Equations*. Preliminary report.

We study partial differential equations invariant under infinite symmetry algebras parametrized by arbitrary functions of dependent variables and their derivatives. We find the class of scalar differential equations of the first and second order possessing infinite symmetries containing an arbitrary function of the dependent variable. We generate a partial differential equation of the second order in a real two-dimensional space possessing infinite symmetries with an arbitrary function of all first derivatives. We give geometric interpretation of the results and generalize them to n-dimensional space. (Received September 22, 2015)