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Dennis The* (dthe@math.tamu.edu), Department of Mathematics, Texas A&M University, College Station, TX 77843-3368. *Maximally symmetric hyperbolic equations of generic type.*

The classification of (in general nonlinear) scalar second order PDE in the plane into elliptic, parabolic, hyperbolic classes is well-known to be invariant under contact transformations. There is a finer contact-invariant sub-classification of hyperbolic equations into Monge-Ampere, Goursat, and generic types. While the Monge-Ampere class has been well-studied from a geometric perspective, the latter two classes have not. An intriguing property about the generic class is that any such equation admits at most a nine-dimensional contact symmetry group. Moreover, there is a one-parameter family of such maximally symmetric equations which I will describe in this talk. I will also illustrate a curious connection relating these maximally symmetric models to equations admitting G2 symmetry mentioned in Cartan's famous five-variables paper. (Received February 01, 2009)