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**Jennie D'Ambroise\*** (jdambroise@gmail.com), PO Box 5000, Annandale-on-Hudson, NY 12504, and **Floyd L Williams**. *Parametric and other exact solutions to Einstein's equations in terms of special functions.*

In this talk I will review recent results regarding solutions of Einstein's equations using elliptic functions. In certain cosmological models with a perfect fluid energy-momentum tensor, the Einstein equations of general relativity reduce to a differential equation whose solutions can be found in terms of Jacobi or Weierstrass elliptic functions. Moreover, in recent joint work with Floyd L. Williams we find more widespread applications of special functions for cosmological models including Bianchi V, Bianchi IX, and Szekeres-Szafron. In these models solutions are found by specifying the parameters in a general nonlinear differential equation, which we solve parametrically in terms of the Weierstrass elliptic, sigma and zeta functions. (Received July 05, 2012)