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Marianty Ionel* (mionel@utnet.utoledo.edu) and **Thomas Ivey**. *Austere Submanifolds of Dimension 4*.

An austere submanifold in \mathbb{R}^n has the property that its second fundamental form in any normal direction has eigenvalues occurring in oppositely signed pairs. This notion was first introduced by Harvey and Lawson in 1982 through their result that showed that the conormal bundle of a submanifold M in \mathbb{R}^n is a special Lagrangian submanifold in the cotangent bundle of \mathbb{R}^n if and only if M is an austere submanifold. The austere submanifolds of dimension 3 in Euclidean space were classified by R. Bryant. In this talk I will present some new results towards a classification of austere submanifolds of dimension 4 in Euclidean space. This is joint work with Thomas Ivey. (Received February 10, 2009)