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**Andrea N Young\***, ayoung@math.arizona.edu, and **Michael Jablonksi**. *Ricci Yang-Mills solitons on nilpotent Lie groups*.

In this talk, I will define Ricci Yang-Mills solitons, which are generalized fixed points of the Ricci Yang-Mills flow. These metrics are related to Ricci solitons; however, they are defined on principal G-bundles and are designed to detect more of the bundle structure. On nilpotent Lie groups, one can say precisely in what sense Ricci Yang-Mills solitons are weaker than Ricci solitons. I will provide examples of 2-step nilpotent Lie groups that admit Ricci Yang-Mills solitons but that do not admit Ricci solitons. This is joint work with Mike Jablonksi. (Received August 25, 2009)