1118-58-151 **Timothy P Carson*** (tcarson@math.utexas.edu). *Warped Product Ricci Flow and a Pohozaev Identity.*

There are many examples of Ricci solitons which are warped products. The Ricci soliton equation on a warped product formally resembles an elliptic equation which has been studied since the 1980s in connection with blowups of a nonlinear parabolic equation.

In this talk, we expose parallels between this parabolic equation and Ricci flow on warped products. One fact which carries over is the existence of a Pohozaev identity, which forces warped product gradient shrinking solitons over complete one- or two- dimensional bases to be products. This contrasts with the expanding and steady cases, where examples over non-compact bases are known in almost every dimension, but maximum principle arguments show that (non-product) examples do not exist over compact bases. The result extends one by Doo-Song Kim, who showed that warped products that are Einstein over two dimensional compact bases must be products. The comparison to the parabolic PDE explains why a void exists in our understanding of Kim's result in higher dimensions and shrinking Ricci solitons on warped products; even for the PDE in Euclidean space results are quite technical. (Received January 29, 2016)