1116-35-1501 **Luan T Hoang*** (luan.hoang@ttu.edu), Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX 79409. *On non-Darcy fluid flows in porous media.*

The most common equation to describe fluid flows in porous media is the Darcy law. However, this linear equation is not valid in many situations, particularly, when the Reynolds number is large. In that case, nonlinear Forchheimer equations are used in place of the Darcy Law. In this talk, we will survey the Forchheimer models and their generalizations for compressible fluids in homogeneous and heterogeneous porous media. We derive various estimates for the pressure and its spatial and time derivatives, especially for large time. We also establish the continuous dependence on the initial and boundary data, as well as structural stability with respect to the Forchheimer coefficients. (Received September 20, 2015)