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**Lidia Bloshanskaya\***, Department of Mathematics and Statistics, Broadway and Boston, Lubbock, TX 79409-1042, Lubbock, TX 79409, and **Akif Ibragimov, Eugenio Aulisa and Luan Hoang**. *Time Asymptotics Of Non-Darcy Flows Controlled By Total Flux On The Boundary*.

We study of long term asymptotic of diffusive capacity, the integral characteristic of the domain with respect to non-linear Forchheimer flow in porous media. Conditions on the boundary are given in terms of the total flux and constraints on the trace of the pressure on the boundary. It is proved that if total flux stabilizes then the difference between pressure average inside domain and on the boundary stabilizes as well. The refined comparison of fully transient and pseudo steady state pressure (the time derivative of pressure is constant) is performed. These results can be effectively used in reservoir engineering and can also be applied in other problems modeled by non-linear diffusive equations. (Received September 06, 2012)