

1125-35-2097      **Xiaoming Wang\***, Department of Mathematics, Florida State University, 1017 Academic Way,  
Tallahassee, FL 32306. *Coupling of free flow with porous media flow.*

Coupled free flow and porous media flow is of great importance in science and engineering applications. However, the interface boundary conditions are not very well understood, especially when the interface is curved or when the Reynolds number is large. We present a few recent results on the derivation of the interface boundary conditions based on variational principle at the low Reynolds number regime. We also show that two well-known competing interface boundary conditions at high Reynolds number are consistent in the sense that they lead to the same leading order behavior at small Darcy number. (Received September 19, 2016)