

1116-76-2009 **Dambaru Bhatta*** (dambaru.bhatta@utrgv.edu). *Adjoint system for a 3D convective flow in an active mushy layer*. Preliminary report.

We consider a three dimensional convective flow in mushy layer which is formed during solidification of binary alloys here. We treat the horizontal mushy layer as an active porous media with variable permeability. The flow in the mushy layer can be described by a system of partial differential equations including the momentum equation governed by the Darcy's law. The linear system for the mushy layer is obtained by perturbing the basic state system and then the adjoint system is derived from this perturbed linear system. (Received September 21, 2015)