

1135-35-2504      **Roger Thelwell\*** (thelwerj@jmu.edu). *Coefficient Recovery in a Quasilinear Parabolic PDE.*

A numerical recovery algorithm is presented of the simultaneous recovery of two important soil property parameters in the Richards Equation, a quasilinear parabolic PDE. The numerical method is based on an integral identity realized by an adjoint approach. Because the integral identity allows a direct view of the sensitivity of recovery, and tangible ingredients in the identity, it permits a clear and intuitive process by which to understand recovery and features which make recovery difficult. It also allows the sensitivity of the recovery to be explored. Several manufactured examples are considered to highlight indicators that might prove useful. The method is then applied to simulated data (generated by HYDRUS-1D) and finally to data from a physical laboratory. (Received September 26, 2017)