

1067-49-681

Nguyen Mau Nam* (nguyenmn@utpa.edu), 1201 W. University Drive, Edinburg, TX 78539, and
Juan Salinas (jsalinasn@broncs.utpa.edu), 1201 W. University Drive, Edinburg, TX 78539.

Variational Analysis of Minimal Time Functions and Applications.

In this talk we present new results on our recent the study of a broad class of minimal time functions corresponding to control problems with constant convex dynamics and closed target sets in Banach spaces. We obtain formulas for computing various subgradients of minimal time functions in both cases of convex and nonconvex targets. Our technique is based on advanced tools of variational analysis and generalized differentiation. As an application, we introduce a generalized version of the celebrated Fermat-Torricelli problem and derive necessary as well as necessary and sufficient optimality conditions for the problem. Our approach allows us to completely solve this problem in many important settings. *(This talk is based on a joint work with Prof. Boris Mordukhovich)* (Received September 13, 2010)