

1128-45-71

Colleen Margarita Kirk* (ckirk@calpoly.edu) and **W. E. Olmstead.** *Local and Nonlocal Boundary Quenching in a Subdiffusive Medium.*

A mathematical model for boundary quenching in a subdiffusive medium is analyzed. The quenching effect is simulated by a nonlinear flux condition at the left boundary of a one-dimensional bar. The nonlinearity is allowed to depend upon either the local temperature of the boundary or a global average of temperature. The right boundary of the bar is subjected to either an insulation condition or a zero temperature condition. The model is analyzed by converting the original partial differential equation model into a nonlinear Volterra integral equation. A separate analysis is carried out for an extension of the model that includes the influence of advection. (Received February 10, 2017)