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**W E Olmstead** and **Catherine A Roberts\*** ([croberts@holycross.edu](mailto:croberts@holycross.edu)), Dept of Mathematics and Computer Science, =, Worcester, MA 01610. *Thermal Blow-up in a Subdiffusive Medium.*

The problem of thermal blow-up in a subdiffusive medium is discussed within the framework of a fractional heat equation with a nonlinear source term. The analysis will establish that a thermal blow-up always occurs when a finite strip of subdiffusive material is exposed to the effects of a localized, high-energy source such as a laser beam. This behavior is distinctly different from the classical diffusion case in which a blow-up can be avoided by locating the site of the energy source sufficiently close to one of the cold ends of the strip. (Received September 10, 2008)