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**Jason M. Graham\*** ([jason.graham@scranton.edu](mailto:jason.graham@scranton.edu)), University of Scranton, 204 Monroe Ave, LSC 235, Scranton, PA 18510. *Mathematics of Secondary Cytokine-Induced Injury of Articular Cartilage.*

Injuries to articular cartilage result in the development of lesions that form on the surface of the cartilage. The typical injury response often causes collateral damage, so-called secondary cytokine-induced injury, which results in the spread of lesions beyond the region where the initial injury occurs. In this talk we describe a mathematical model, a system of partial differential equations, and use this to investigate the spread or abatement of such lesions. Furthermore, we define a control parameter, the radius of attenuation, and present some simulations that shed light on how inflammation associated with cartilage injuries impacts the metabolic activity of cartilage cells. We also mention some open questions related to the mathematical study of cartilage injury. (Received August 13, 2013)