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**A. Bass Bagayogo\*** ([abagayogo@ustboniface.ca](mailto:abagayogo@ustboniface.ca)), 200 Avenue de la Cathedral, Winnipeg, Manitoba R2H 0H7, Canada. *Granular Flows Based on Discrete Element Method Modeling.*

Physical processes that involve the disaggregation and movement of material like Granular Material (GM) are best modeled with Discrete Element Method (DEM) rather than continuum methods such as finite elements. In this talk, after a short overview of the mathematical challenges and the state of the art related to the diverse set of behaviors of GM, I will present some numerical simulations results by using the Discrete Element Method (DEM) in order to simulate a wide variety of certain particle shapes such as spheres or ellipses. Discrete element methods are relatively computationally intensive, which limits either the length of a simulation or the number of particles. Several DEM codes, as do molecular dynamics codes, take advantage of parallel processing capabilities to scale up the number of particles or length of the simulation. (Received September 16, 2014)