1154-35-50 **Suzanne Weekes*** (sweekes@wpi.edu). *A numerical and analytical study of dynamic materials.*

In this presentation, I will give an overview of some of the work that we have done on wave propagation through dynamic materials (DM). DM are spatio-temporal composites - materials whose properties vary in space and in time. Mathematically, we formulate the problem as linear, hyperbolic equations with spatio-temporally varying coefficients. Both analytic and computational means have been applied to the analysis of the effective properties of dynamic materials generated by certain dynamic microstructures. Spatio-temporal variability in the material constituents allows us to create effects that are unachievable through purely static (spatial) design. There are a host of geometries and effects that can be explored. For example, we have found that with dynamic laminates we are able to screen portions of the material from the effects of a wave disturbance. With checkerboard geometry in space-time, we see pulse compression and energy accumulation and recent work shows that these effects are structurally stable. (Received July 30, 2019)