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A Kinetic Model of Active Extensile Bundles DANIEL GOLDSTEIN, BULBUL CHAKRABORTY, APARNA BASKARAN, Brandeis Univ — Recent experiments in active filament networks reveal interesting rheological properties (Dan Chen: APS March Meeting 2015 D49.00001). This system consumes ATP to produce an extensile motion in bundles of microtubules. This extension then leads to self generated stresses and spontaneous flows. We propose a minimal model where the activity is modeled by self-extending bundles that are part of a cross linked network. This network can reorganize itself through buckling of extending filaments and merging events that alter the topology of the network. We numerically simulate this minimal kinetic model and examine the emergent rheological properties and determine how stresses are generated by the extensile activity. We will present results that focus on the effects of confinement and network connectivity of the bundles on stress fluctuations and response of an active gel.

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