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Active yielding in extensile active gels DAVID GAGNON, CLAUDIA DESSI, Georgetown University, ZVONIMIR DOGIC, University of California, Santa Barbara, DANIEL BLAIR, Georgetown University — Active gels are stiff biopolymer networks driven by molecular motors. In contrast with other non-equilibrium active suspensions, active gels form ephemeral networks with long-range, temporary mechanical contacts. These active crosslinks imbue the gel with fluid-like properties over long timescales and solid-like properties at short timescales. In this talk, I will discuss how activity modifies the mechanical properties of an extensile active gel comprised of microtubules driven by walking kinesin motors. We find an active gel's apparent resistance to flow is non-monotonic with increasing externally-applied shear rate. When the internal active rates are faster than the applied shear rate, the network exhibits active yielding and provides little additional resistance to flow. However, at applied shear rates faster than the internal rates, the active gel stiffens and then yields as if it were a passive biopolymer network.

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