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**Discontinuous Shear Thickening using Boundary Stress Microscopy** VIKRAM RATHEE, DANIEL BLAIR, JEFFERY URBACH, Georgetown Univ — The microscopic picture of particle chain formation in discontinuous shear thickening suspensions remains unclear. In order to identify the role of localized stresses arising from particle chains we have applied the technique of Boundary Stress Microscopy to shear thickening suspension. By imaging deformations of an elastic boundary of the sheared suspension, we observe the appearance of localized forces on elastic substrate above critical stress value. These forces possibly arise from particles forming local network under shear. At the onset of thickening, we observe a change in first normal stress difference from negative to positive, inferring frictional contacts. However, the localized forces are only evident when the viscosity increases by an order of magnitude.

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