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**Measuring shear modulus of individual fibers** HERBERT BEHLOW, DEEPIKA SAINI, LUCIANA OLIVIERA, MALCOLM SKOVE, APPARAO RAO, Clemson University — Fiber technology has advanced to new heights enabling tailored mechanical properties. For reliable fiber applications their mechanical properties must be well characterized at the individual fiber level. Unlike the tensile modulus, which can be well studied in a single fiber, the present indirect and dynamic methods of measuring the shear properties of fibers suffer from various disadvantages such as the interaction between fibers and the influence of damping. In this talk, we introduce a quasi-static method to directly measure the shear modulus of a single micron-sized fiber. Our simple and inexpensive setup yields a shear modulus of 16 and 2 GPa for a single IM7 carbon fiber and a Kevlar fiber, respectively. Furthermore, our setup is also capable of measuring the creep, hysteresis and the torsion coefficient, and examples of these will be presented.

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