

Abstract Submitted  
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**High Speed Imaging to Measure Vibrational Modes of Microtubules**<sup>1</sup> AROOJ ASLAM, KARINA DSOUZA, CAMELIA PRODAN, New Jersey Inst of Tech, EMIL PRODAN, Yeshiva University — The microtubule in the cell is built of smaller proteins called tubulin that self-assemble into a tube-like structure. Microtubules provide support for the cell, and are also a means for motor proteins to transport nutrients long distances around the cell. The microtubule also has a crucial role in coordinating various stages of cell division. Microtubules exhibit the ability to vary their length by a process called dynamic instability, and as microtubules outside the cell can also exhibit this property it is clear that the tubulin proteins themselves and how they are assembled dictate this function. The microtubule can be studied from a structural analysis standpoint. Using a high-speed camera to image fluorescently labeled microtubules actuated by thermal motion we can calculate the persistence length and the flexural rigidity of the microtubule.

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