Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Measuring the Dynamic Parameters of MCF7 Cell Microtubules
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Microtubules are the key component of the cytoskeleton. They are intrinsically dynamic displaying dynamic instability in which they randomly switch between a phase of growing and shrinking, both in vitro and in vivo. This dynamic is specified by the following parameters: growing rate, shrinking rate, frequency of catastrophe, and frequency of rescue. In this work, we will present our primary results in which we measured the dynamic parameters of a single microtubule polymerized from MCF7 tubulin in vitro. The results are significant since the MCF7 microtubules are non-neural mammalian consisting of different beta tubulin isotypes in their structures as compared to neural mammalian microtubules, such as bovine brain. The unique dynamic parameters of individual MCF7 microtubules in vitro, which are reported for the first time, indicate that non-neural microtubules can be fundamentally different from neural microtubules.

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Date submitted: 26 Nov 2012 Electronic form version 1.4