

Abstract Submitted  
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**Theoretical estimation of the breakage intensity of microtubules at resonance using ultrasound waves** ABDORREZA SAMARBAKSH<sup>1</sup>, JACK TUSZYNSKI<sup>2</sup>, Department of Oncology, University of Alberta — Microtubules (MTs) are protein filaments forming a major part of the cytoskeleton of all eukaryotic cells which directly contribute to the process of cell division by forming mitotic spindles and providing force for the segregation of chromosomes. In this work first we show the resonance condition for MTs subject to ultrasound wave by solving the beam equation for MT analytically. Then we estimate the required minimum intensity of the ultrasound at the location of the MT in order to break it. We have shown that this intensity is of the order of 100KW per unit of area which corresponds to 170 dB.

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