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| **Title:** | A. T. Naziba, M. T. Nafisa, **M. N. Uddin**, | | | |
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| **Abstract:** |  |
| In the field of biomedical, HIFU is a non-invasive therapeutic method that employs non-ionizing acoustic waves to increase the temperature. According to its high efficiency and cheap cost, it has been the main focus of this research. The key stages of this tumor ablation include mechanical and thermal effects. Simulations on tissue ablation with HIFU were implemented in this research to investigate how multiple tissue ablation works and how to enhance tumor ablation while avoiding injury to surrounding healthy tissue by altering the optimal intensity, power, focal length and lens radius of curvature. In order to find the optimal features of the proposed model, this analysis employs clinical applications. Numerous soft and hard tissues from the human body were chosen for this analysis. At a specified acoustic power and exposure period, each tissues optimal frequency (1.6 MHz to 3.5 MHz) and power (120 W to 140 W) were obtained for effective tissue ablation. This research performed all computations by changing the focal length from 55 mm to 65 mm. The outcomes of this therapy might require several weeks to comfortably remove tumor. This optimum result indicates that HIFU tumor ablation procedure has a high probability of success. | |