

Abstract Submitted
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The performance and operating mechanism of the ultrasonic scrubber¹ J.R. SAYLOR, W. RAN, Clemson University — An ultrasonic standing wave field is commonly used to levitate drops, facilitating drop studies in several ways. In the typical use of such a standing wave field, drops are simply placed at the node of the field and thereby levitated. However, it is also true that any particles or drops located in the general vicinity of the nodes of an ultrasonic standing wave are drawn toward the nodes where they accrue. We have shown that this effect can be used to create an “ultrasonic scrubber”, wherein the combination of a fine water mist and an ultrasonic standing wave field is used to remove particles (e.g. particulate pollutants) from a gas flow directed at the field (*Ran, Saylor, & Holt, J. Aerosol Sci., 67, 104-118 (2014)*). In this talk details are presented of the operating mechanism responsible for the success of this approach to scrubbing. The results of an experimental study are also presented showing the effect of the gas flow rate and droplet size distribution on the scavenging coefficient for one version of the ultrasonic scrubber.

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