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## Convonics: Acoustics field assisted confined natural convective heat transfer

**Ribhu Bhatia, Sambit Supriya Dash and Vinayak Malhotra**  
SRM Institute of Science and Technology, India

Temperature as independent function has always been used to study the behaviour of flow, its energy and direction. Acoustics is well known to affect heat transfer rates and therefore studies have been carried out for many decades to quantify and characterise heat transfer. The following work focuses on understanding response of flow in coupling of acoustic field with confined free convective heat transfer and to pact the optimization of acoustics to provide a solution to various problems in engineering applications. The experimentation requires free convection apparatus which consists of flat plate as potential heat source and power supply regulator for various input voltage. Plate orientations, sound wave frequencies, distance of sound source from plate and sets of sound source configurations are taken as governing parameters to affect confined convective heat transfer phenomenon. To simplify the heated surface orientation and heat transfer analysis, a novel zonal system with respect to surface orientation has been used. Results indicate that acoustics significantly affect energy transportation from the source under varying conditions. The compiled results are noted to provide excellent physical insight in the convecto-acoustics phenomenon. Flow behaviour with respective variations is understood to play a formidable role in energy transference which implicates diverse use acoustics for wide range of applications.

ribhubhatia4@gmail.com

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