



SDI Review Form 1.6

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| Journal Name: | Advances in Research |
| Manuscript Number: | 2014_AIR_15197 |
| Title of the Manuscript: | Effect of Sinusoidal Excitation on Fluid Flow across a Cu-Mica Microchannel |
| Type of the Article | Original Research Article |

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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PART 1: Review Comments

| | Reviewer's comment | Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here) |
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| <u>Compulsory</u> REVISION comments | <p>1 - Please add to the paper information about the piezoelectric oscillator the authors used. Was it a commercial piezo? Was deposited by the authors? Which material and thickness? These factors (material, dimensions) will be essential to understand the obtained frequency results.</p> <p>2 - The authors present the frequencies at which the transducers were actuated but never indicated a voltage amplitude. And this is important, since it is well known that the piezoelectric effect is, at a determined frequency, directly proportional to the voltage (from the constitutive equations of the piezoelectric effect).</p> <p>3 - It is not clear to me how the authors actuated the piezoelectric transducers. Are they next to the fluid? Below the channels? How do you assure there is acoustic propagation to the fluid in order to promote a flow?</p> <p>4 - The authors refer they used a video camera to capture the flows but don't indicate how the velocities were determined. Was there some PIV technique? Which software was used to process the frames?</p> <p>5 - The authors study the effect of the frequency on the flow but have no explanation for the results they obtain. The authors recognize that there is no direct relation between frequency and velocity but don't know why. I recommend the authors to determine, based on the fluid</p> | <p>No piezo speaker was used to provide oscillations. The signal was generated at computer and was applied through sound card to the bottom surface of the channels. 3 ohm speaker was used for the experiment. The formal description is added in the manuscript. The amplitude of the applied PWM signal was fixed at 5 volt.</p> <p>Velocities were determined using stop watch.</p> |



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| | <p>properties, each resonant frequency, in order to understand the maximum peaks of velocity at certain frequencies. Therefore, determine the resonant frequency of the piezoelectric transducer (based on the material thickness and speed of sound in the transducer), so it will be possible to know at which frequencies the acoustic signal is optimized. Then, determine the resonant frequency of each fluid and verify if it corresponds to the experimental results they obtained. This would be important for improving the manuscript quality.</p> <p>6 - Please improve the discussion of the results. The authors present several results but never discuss them. Never compare the results with ones obtained by other authors, never take conclusions about their own results (are they good or bad, were they expected?). Please add some discussion of results.</p> <p>7 - Please submit figures with best quality, since some of them are extremely blurry.</p> | <p>Tried our best to modify the results portion.</p> <p>Figures are replaced and we highlighted the modified script in yellow. Fig. 3 is replaced by the new one and fig.8 is also added to show the future work.</p> |
| <u>Minor</u> REVISION comments | | |
| <u>Optional/General</u> comments | <p>The authors present an interesting experimental study about oscillatory acoustic flows and how they are affected by several parameters: frequency, gravity and temperature.</p> | <p>Thanks for the valuable comments.</p> |