**Supplementary Information**

**On**

**Theoretical and Experimental Analysis of Miniaturization of Conventional Oscillatory Flow Technology**

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**Pump Curve – Experimental Data**

S1. Pressure drop vs. Volumetric flow rate

S2. Pressure drop vs. volumetric flow rate

S3. Pressure drop vs. Volumetric flow rate

**Valve Positioning:**

**The change in the position of the valve can be rearranged as per the**

**Future work**

The preliminary feasibility of OFT in minichannels has been investigated and theoretical analysis suggests that the OFT in minichannel showed increase Nusselt numbers at equivalent energy dissipation relative to a smooth pipe at reduced dimensions. The design of mini-fluidic channels specifically for oscillatory flow will be performed and tested experimentally to evaluate momentum, heat and mass transfer performance relative to both a smooth pipe, and more recent minifluidic contacting devices.



Figure 1 –Modular Fluidic Platform

Fluidic platform integrated with high-resolution rapid prototyping capabilities to construct and test new geometries. It is Capable of 3D prints with 20-100 μm practical resolution. This plate and frame mini-fluidic arrangements is suitable for scale up the chemical processing. These modules can be arranged like plate – frame filter press for large scale production of chemical in mini-fluidics approach (Norbert Kockmann, 2011). [27]