

Acoustically enhanced heat exchangers (Technion)

code: ENG-1764

Many systems require heat to be either added or dissipated towards maintaining their operability and efficiency. The change in temperature is provided by a heat exchanger, connecting two streams that have a thermal potential difference. Due to form factor limitations associated with many size-restrained applications, the state of the art is advancing towards compact designs. This forms the basis towards higher performance and efficiency heat exchangers – enabling more heat transfer for the same size machine. We present here a method for obtaining a significant increase in heat transfer by exciting the flow channels with sound waves that are in tune with the system acoustic resonances. Enhanced heat transfer may be achieved with existing or next generation CHEs designs with minimal additional pressure drop.

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