## ABSTRACT

# METHOD OF DESIGNING HYDRODYNAMIC CAVITATION REACTORS FOR PROCESS INTENSIFICATION

The present invention describes an apparatus of Hydrodynamic cavitation, to be used as reactors to achieve tangible effect by producing tailored active cavities either transient or steady or both, in aqueous and non-aqueous media for intensification of the physical and chemical processes in homogenous and heterogeneous systems. An apparatus comprises of a cavity generator, cavity diverter and turbulence manipulator wherein the cavity generator/cavity diverter is a flow modulator of various shapes and sizes. A regime map of cavitation and a method to generate it, is presented to achieve the desired type of cavitation, required for specific targeted process intensification and then reactors are designed to achieve the predetermined process intensification. Regime map relates the maximum fluid velocity in cavity generator with the cavitation number, active and specific type of cavity fraction for several geometric designs of apparatus.

No suitable Figure for Publication