

Abstract Submitted
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Design of an Efficient Turbulent Micro-Mixer for Protein Folding Experiments¹ VENKATESH INGUVA, MSME Student, BLAIR PEROT , Advising Professor — Protein folding studies require the development of micro-mixers that require less sample, mix at faster rates, and still provide a high signal to noise ratio. Chaotic to marginally turbulent micro-mixers are promising candidates for this application. In this study, various turbulence and unsteadiness generation concepts are explored that avoid cavitation. The mixing enhancements include flow turning regions, flow splitters, and vortex shedding. The relative effectiveness of these different approaches for rapid micro-mixing is discussed. Simulations found that flow turning regions provided the best mixing profile. Experimental validation of the optimal design is verified through laser confocal microscopy experiments.

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