

Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Conveying principles of fluid mechanics... through dance¹ JESSE CAPECELATRO, University of Michigan — Fluid mechanics is typically introduced to undergraduate engineering/physics students in their junior year, relying on knowledge from core courses in calculus and physics. Topics are traditionally introduced through tedious derivations that sometimes lack a clear conceptual interpretation. However, fluid mechanics is extremely visual, and solutions to classic fluid mechanics problems are highly aesthetic (for example, an oscillating wake past an obstacle, the swirl of a vortex, the chaotic motion of turbulence). In this talk, I will present an attempt at using dance to demonstrate fundamental principles of fluid mechanics. The objective is to create a visual demonstration of flow around a cylinder through a physics-constrained dance improvisation. This project involves a collaboration between Prof. Capecelatro from the University of Michigan (UM) and dancers from the UM School of Music, Theatre & Dance. A series of dances were choreographed and filmed ranging from low Reynolds number (creeping) flow to high-Reynolds number turbulence and inviscid (potential) flow. Details on the process and outcome of this collaborative effort will be presented, in addition to efforts to assess impact on student learning.

¹This work was supported by the University Musical Society (UMS), University of Michigan Arts Engine, and University of Michigan School of Engineering

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Date submitted: 17 Jul 2019

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