Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

**Optimal Swimming with a Burst-and-Coast Behaviour**[1] EMRE AKOZ, KEITH MOORED, Lehigh University — Swimming animals are typically assumed to be continuously adding power to the fluid throughout a period of motion. On the other hand, animals have been observed using a non-continuously powered motion described as a burst-and-coast or burst-and-glide behavior. When animals use a non-continuously powered motion it is estimated that their cost of transport is reduced by as much as 45%. However, there are competing mechanisms in the literature that lead to this conclusion. The present study aims to identify the underlying mechanism of burst-and-coast energy savings and to quantify the scaling of optimal motions. A two-dimensional boundary element method approach is used to quantify the performance and wake structure of a free-swimming pitching panel operating with a burst-and-coast behavior.

[1]Supported by the Office of Naval Research under Program Director Dr. Bob Brizzolara, MURI grant number N00014-14-1-0533.

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Date submitted: 01 Aug 2014 Electronic form version 1.4