

Abstract Submitted  
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**Thrust Production in a Mechanical Swimming Lamprey** MEGAN

LEFTWICH, ALEXANDER SMITS, Princeton University — To develop a comprehensive model of lamprey locomotion, we use a robotic lamprey as a means of investigating the surface pressure and wake structure during swimming. A programmable microcomputer actuates 11 servomotors that produce a traveling wave along the length of the lamprey body. The waveform is based on the motion of the American eel (*Anguilla rostrata*), as described by Tytell and Lauder (2004) and kinematic studies of living lamprey. The amplitude of the phase-averaged surface pressure distribution along the centerline of the robot increases toward the tail, which is consistent with previous momentum balance experiments indicating that thrust is produced mainly at the tail. The phase relationship between the pressure signal and the vortex shedding from the tail is also examined. The project is supported by NIH CNRS Grant 1R01NS054271.

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