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Efficiency of flapping flight UMBERTO PESAVENTO, Department of Theoretical and Applied Mechanics, Cornell University, Z. JANE WANG, Department of Theoretical and Applied Mechanics, Cornell University — We analyze the efficiency of flapping and fixed wing kinematics at Reynolds numbers of about 100, as appropriate for insect flight. In particular we solve the two dimensional Navier-Stokes equations and minimize the average aerodynamic power required to support the typical weight of a fruitfly. We find that carefully designed periodic kinematics can be more efficient than fixed wing kinematics.

Prefer Oral Session
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