

Abstract Submitted  
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**Optimizing Snails** ERIC LAUGA, ANETTE HOSOI, MIT — Many marine snails propel themselves on a solid surface using travelling waves of surface deformation of their flexible foot. Using fluid forces, these waves allow the force-free organism to move forward, and its velocity is in the direction opposite to the travelling wave (so called “retrograde motion”). We study the optimization of the travelling wave profile, based on consideration of (1) swimming efficiency, (2) lift force, (3) elastic deformation of the foot and (4) volume of the liquid film. The distinction between real and artificial organisms allows the definition of different optimal snails.

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