

Abstract Submitted
for the DFD06 Meeting of
The American Physical Society

Fin ray design and use in fish swimming SILAS ALBEN, PETER MADDEN, GEORGE LAUDER, Harvard University — Fish fins have evolved over millions of years in a convergent fashion, leading to a highly-intricate fin-ray structure that is found in half of all fish species. This fin ray presumably arose for reasons of efficient hydrodynamic interaction. I will present a linear elasticity model of the fin ray, based on the physical picture of the ray which has emerged from past experiments. By comparing the model with recent experiments performed in the Lauder Lab in Harvard's Biology department, we find that the model helps to understand some of the fundamental properties of fin rays. I will also present some recent results from a fully-coupled fin-fluid model, which combines a model for flexible bodies in a fluid flow with the dynamics of vortex sheets.

Silas Alben
Harvard University

Date submitted: 02 Aug 2006

Electronic form version 1.4