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CILIA

Customized Intelligent Life-Inspired Arrays

Integrated Project

Information Society Technologies
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Proactive Initiative BIO-I3

DELIVERABLE: D1.3.2 – Executive Summary

DESCRIPTION OF CFD CODE AND OF INDIVIDUAL
HAIR AND NEUROMAST MODELS

Actual submission date:	October 31, 2007	
Start day of project:	September 1st, 2005	Duration: 48 months

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DESCRIPTION OF CFD CODE AND OF INDIVIDUAL HAIR AND NEUROMAST MODELS

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EXECUTIVE SUMMARY

A numerical model of a cercal hair has been developed and validated. The model consists of a fully three-dimensional computational fluid dynamics solver coupled to a simple dynamic model of a rigid hair. The model was tested against theoretical results for an infinite cylinder, as well as an analytical model for a finite length hair, with very good results. Preliminary three-dimensional simulations show that three-dimension effects play a small, but possibly significant, role in the oscillation of a cercal hair.