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**Conjugate heat transfer of rotating axisymmetric bodies** TOMAS SOLANO, KOUROSH SHOELE, JUAN ORDONEZ, Florida State University — The flow physics and conjugate heat transfer of axisymmetric rotating bodies are studied using high fidelity CFD simulations coupled to a kernel-based model of the heat equation for the structure's internal temperature. The structure is heated from one of its bases and exposed to a free-flowing fluid. This model is representative of heat fins used in many practical engineering systems. The geometry, rate of rotation, and structure's material properties have a significant effect on the temperature distribution and heat transfer coefficient. We explore how these parameters at different Reynolds numbers affect the system's thermal performance and discuss the connection between flow and thermal instabilities and the rotational speed of the body.

Tomas Solano
Florida State University

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