

January 25, 2017

TO WHOM IT MAY CONCERN

Xavier Corbella Coll has completed an internship with the CFD group at COMSOL AB, Stockholm, Sweden from June 7, 2016 until January 30, 2017. The software in the COMSOL product suite is based on the finite element method. During his internship at COMSOL, Xavier has developed new models and apps in the Application Libraries, implemented and tested a new physics interface called the Stabilized Convection Diffusion Equation interface, and worked on conservative formulations for high Mach number flow.

Three new models and three new apps have been developed. The models treat transonic and supersonic flow using adaptive meshing, while the apps also involve turbulent flow in pipes and fluid-structure interaction. Additionally, Xavier has contributed to numerous other models in the Application Libraries. The development of the Stabilized Convection Diffusion Equation interface involved consistent stabilization techniques for finite element methods including stream-wise and crosswind diffusion, and the discontinuous Galerkin method for the implementation of the periodic boundary condition. Xavier has also suggested and tested various formulations for achieving energy conservation in high Mach number flow without jeopardizing convergence properties.

Xavier Corbella Coll is a careful, resourceful, and inventive researcher who has done excellent work during his internship at COMSOL. With his strong background in mathematics and numerical methods, he quickly adapted to the development environment at COMSOL and added valuable contributions to the product suite.

We are pleased to give Xavier Corbella Coll our highest recommendations.

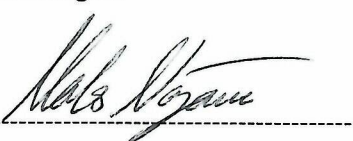
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Chief Technology Officer,

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