Boulder Fluid and Thermal Sciences Seminar Series

Friday, August 16, 2019
9:30–10:30 AM (refreshments at 9:15 AM)
MCEN Conference Rooms ECME 137A/B in the Engineering Center
University of Colorado, Boulder

Deal.II showcase - a general library for adaptive finite element codes

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Scientific computing has become of more and more importance for modern research. Especially the finite element method has grown to become one of the most majorly used methods in this field. Writing simulation software on your own, that is oftentimes only designed for just one particular task, is very time consuming and likely prone to errors, since all the basic data infrastructure and linear algebra has to be supplied from scratch. In this talk, we will present the open-source software library ‘deal.II’ that supports the creation of finite element codes by supplying all the tools and infrastructure necessary to build specialized simulation software, involving parallelization and adaptive methods.

Biography: Marc Fehling graduated with a master's degree in physics from the Ruhr University Bochum in the field of theoretical plasma physics. Currently, he switched to fire safety science for his PhD. Since the simulation of fire and smoke spread in large geometries is an expensive task, he is working on parallel hp-adaptive finite element methods that promise to speed up multi-scale simulations significantly. A reference implementation follows in the open-source library ‘deal.II’, with whose developers he works closely.