

Presenter: Associate Professor. PhD. Casper Schousboe Andreasen

Title: Lowering carbon footprint of heat transfer devices

Abstract: In thermal energy conversion processes such as compact heat exchangers large amounts of energy are converted and the ability to move the heat at low losses is essential both when trying to lower emissions and when recovering heat from auxiliary sources. Novel designs for compact heat exchangers can be obtained by the application of topology optimization where custom made designs can easily be synthesized and subsequently manufactured using additive manufacturing. Furthermore, focusing on more traditional manufacturing methods for heat sinks, a comparison and quantification of the performance gain for 2D extruded, 2.5D machined and full freedom 3D designs are quantitatively compared.

Bio: Casper Schousboe Andreasen is an Associate Professor at the Technical University of Denmark, Department of Mechanical Engineering. He obtained his MSc (2008) and PhD (2011) from the same University. His research interests are diverse, and he is a world leading expert in simulation and optimization of fluid flows, conjugate heat transfer, particle transport processes and tribology as well as the integration of the multiple physics to conduct topology and shape optimization. Currently he is among other scientific lead on a project named "Easy-E - Easy Energy Efficiency made Industry Available via Thermal Topology Optimisation" with industrial partners in the Danish industry.

