# Simulative Development Of A Convectively Cooled Heat Sink For A Heat Pipe Mould-Element

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## Abstract

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The FH Bielefeld has developed an injection mold in which a lateral slide is tempered by heat pipes instead of conventional cooling channels. The heat sink is to be convectively cooled by a fan which blows an airstream against a fin package. The amount of heat to be dissipated is determined by idealized source and sink temperatures. Which are experimentally determined in a three-dimensional plot of the heat transfer capacity of each heat pipe. To reduce the number of design loops on the real heat sink, COMSOL Multiphysics® is used to investigate the optimal number, arrangement and geometric design of the fins. Here, the results of the built-in convective heat flow boundary conditions are compared with the multiphysics coupling "Non-Isothermal Flow" between "Heat Transfer in Solids" and "Laminar Flow".

## Figures used in the abstract

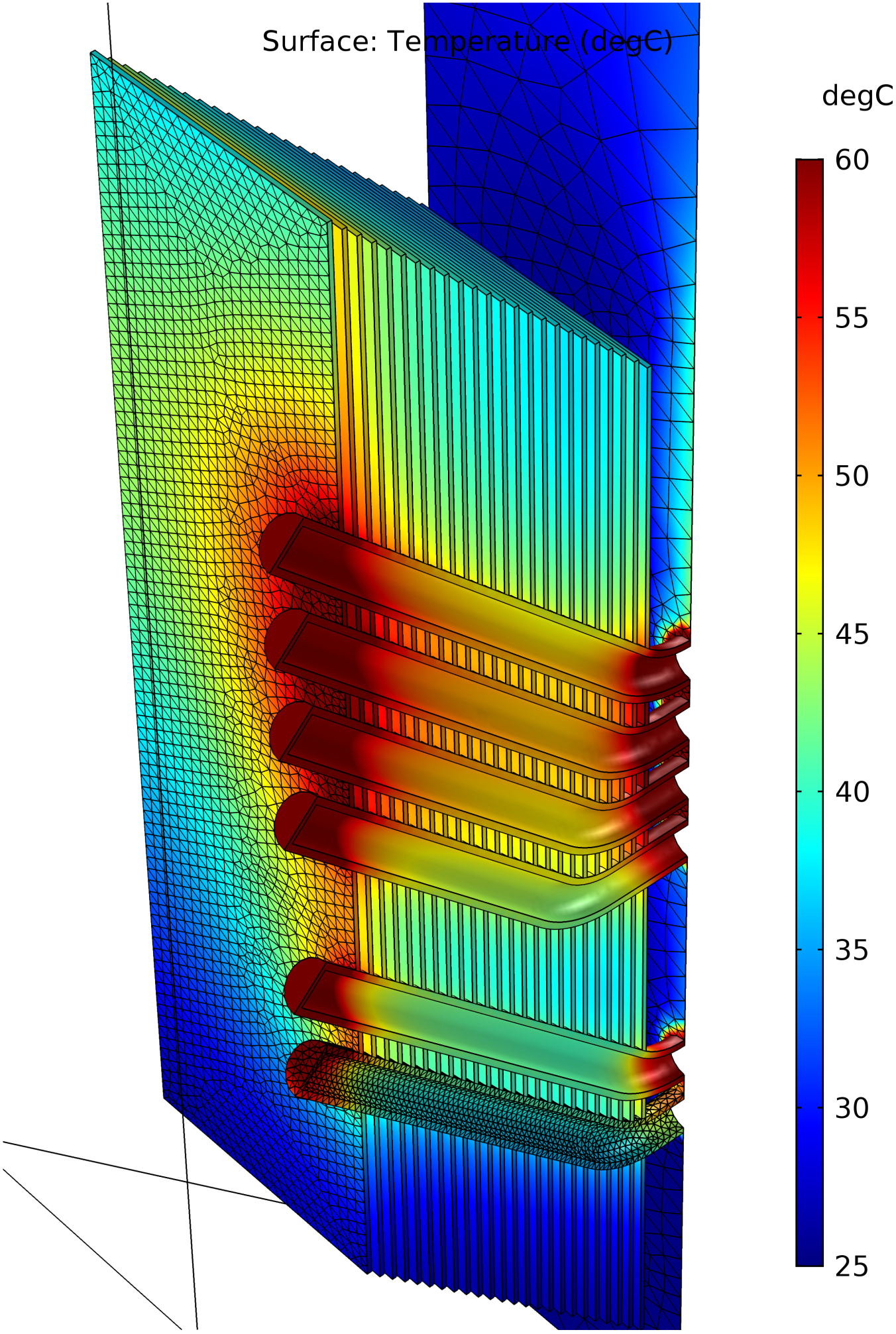


**Figure 1** : Figure 1: 3D plot temperature distribution in ribbed structure

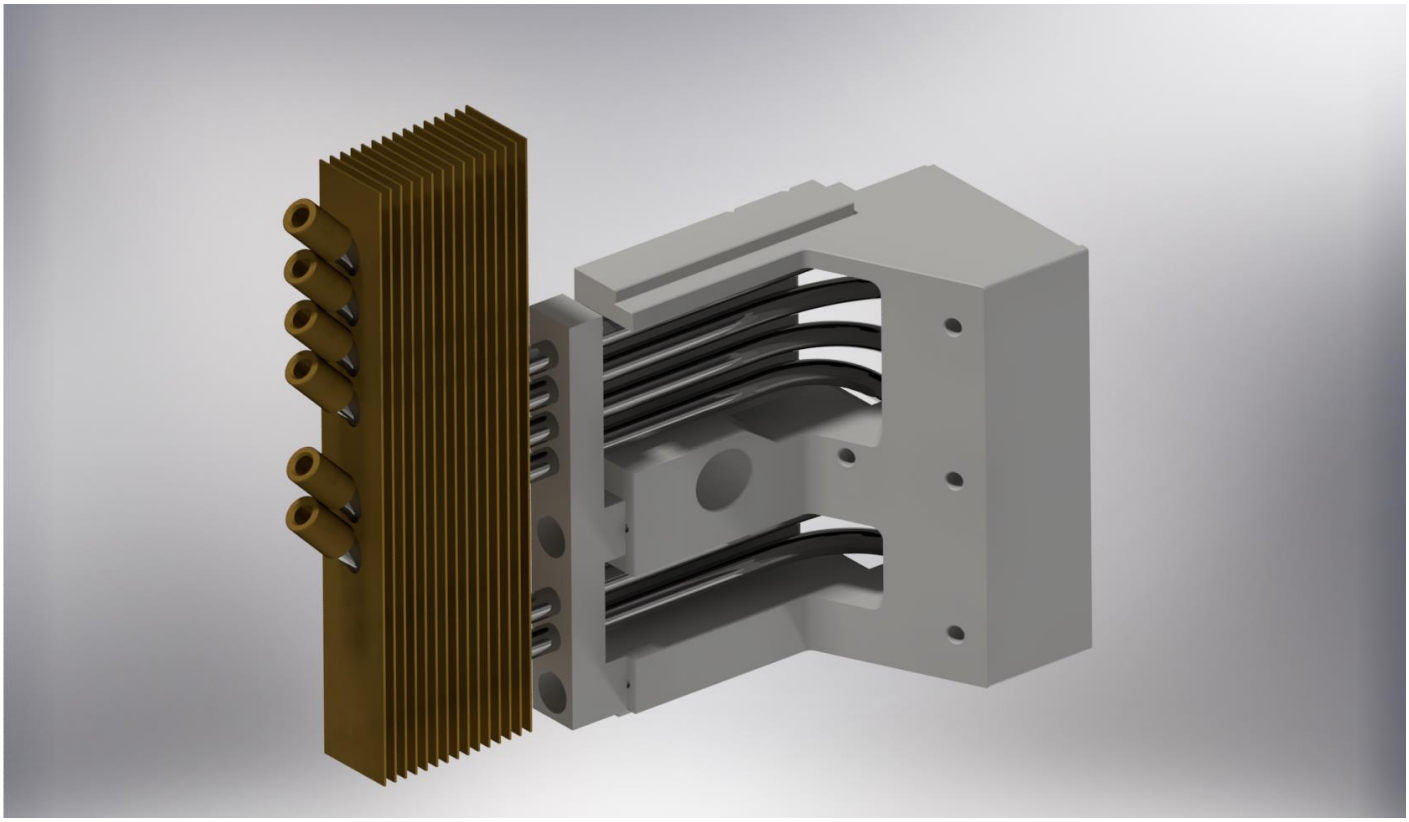

**Figure 2** : Figure 2: CAD concept of a convectively cooled heat sink on a heat pipe mould-element