# Flow of heat conducting fluid on domain changing in time

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We consider a flow of heat conducting fluid inside a moving domain whose shape in time is prescribed by a given velocity field. The flow in this case is governed by the compressible Navier-Stokes-Fourier system consisting of equation of continuity, momentum balance, entropy balance and energy equality. The velocity is supposed to fulfil the full-slip boundary condition and we assume that the fluid is thermally isolated. In the presented article we show the existence of a variational solution. To this end we construct proper penalising approximation. This result is a joint work with O. Kreml, V. Macha, and S. Necasova.