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Thermocapillary convection in a cylindrical liquid bridge – Effect of the ambient gas¹ MICHAEL LUKASSER, DANIEL LANZERSTORFER, HENDRIK KUHLMANN, Vienna University of Technology — The influence of the ambient gas phase on the stability of the two-dimensional axisymmetric steady flow in a cylindrical liquid bridge is investigated by a numerical linear stability analysis. The computational domain includes an annular gas channel which concentrically surrounds the liquid bridge. The stability boundaries strongly depend on the geometry and the material parameters. We consider a liquid bridge of $Pr = 67$ and focus on the effect of the gas-channel width and the thermophysical properties of the ambient gas. Stability boundaries, critical modes and mechanisms will be discussed.

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