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## Abstracts of Short Communications and Posters

### Section:

## 10. Partial Differential Equations

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Schmidtmann, Olaf, Weierstrass Institute for Applied Analysis and Stochastics Berlin, Germany

**Stability Problems in Turbo Compressors**

The talk is related to stability investigations for high speed axial compressors using methods of bifurcation theory. In unbladed regions the flow in the compressor is simulated by means of 2D Euler equations, while the coupling of different parts of the compressor is captured in terms of conservation laws and source terms from external calculations. At inflow and outflow nonreflecting boundary conditions are used in order to prevent any nonphysical reflexion at the boundary. Numerically simulating the system for selected values of inlet mass flow and selected initial conditions, at some critical value of the mass flow a stable steady state loses stability to a time-periodic state, what leads to rotating stall and surge.