

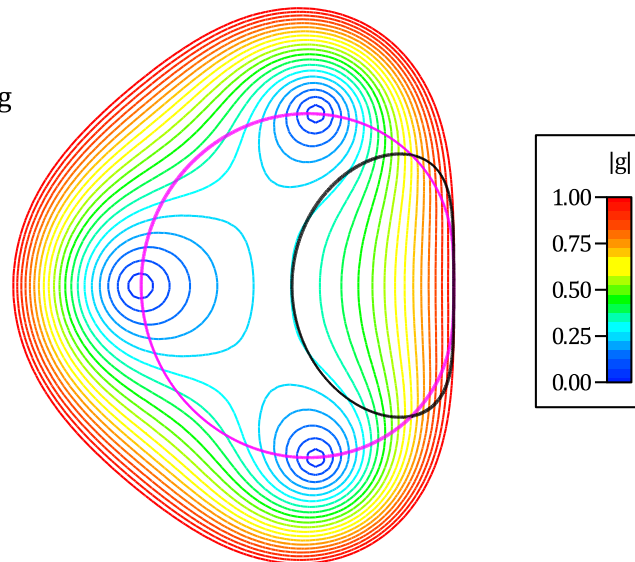
## Explicit (3,3)-scheme, convection equation

Base scheme: 2nd-order upwind spatial discretization,  $\sigma = 0.69$ .

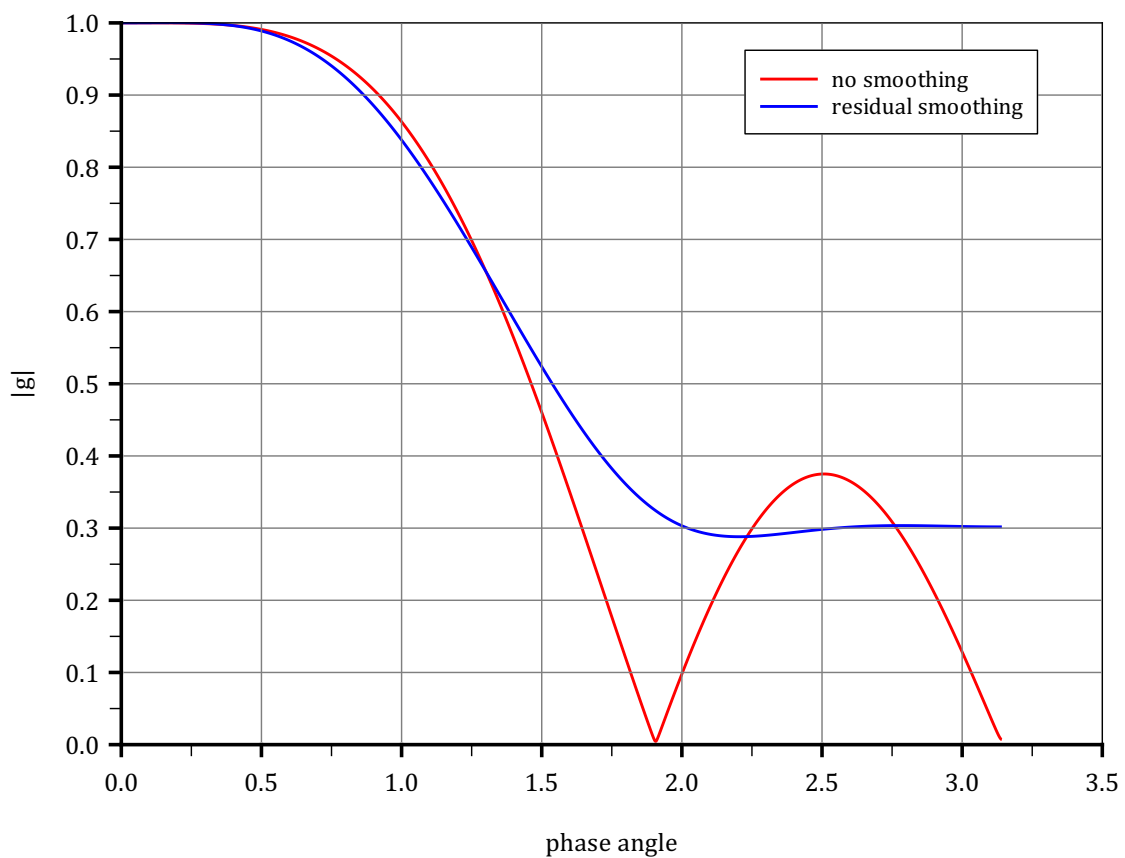
Scheme with central residual smoothing:  $\sigma = 1.5$ ,  $\varepsilon = 0.8$ .

Fourier symbol:

- no residual smoothing
- with implicit smoothing



Fourier symbol  $z$  of the spatial operator and contours of the magnitude of the amplification factor  $|g|$ .



Magnitude of the amplification factor  $|g|$  over the phase angle  $\varphi$ .