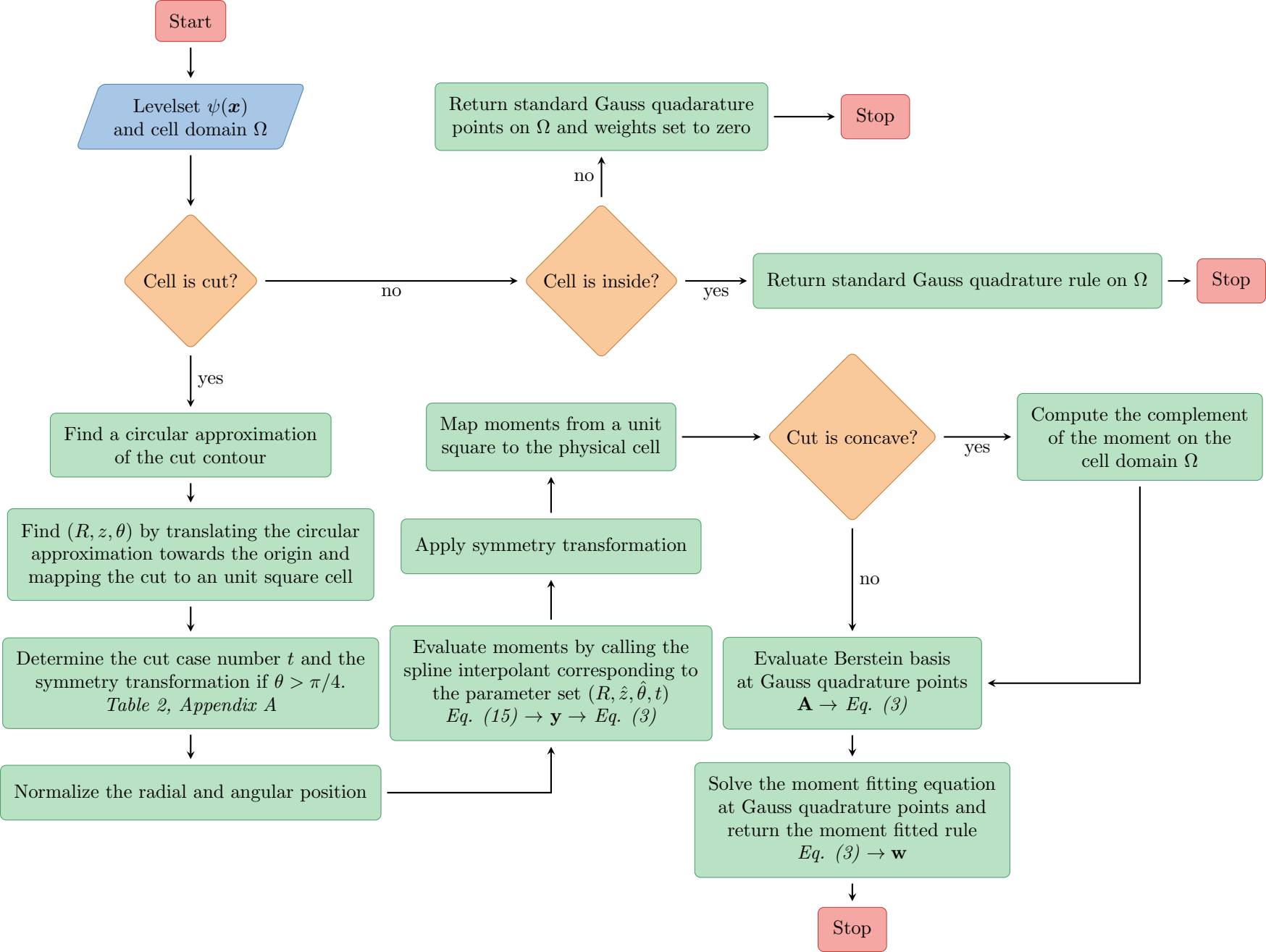
Start
Levelset $\psi(\boldsymbol{x})$ and cell domain Ω
Cell is cut?
no
Cell is inside?
no
Return standard Gauss quadarature points on Ω and weights set to zero
Stop
yes
Return standard Gauss quadrature rule on Ω
Stop
yes
Find a circular approximation of the cut contour
Find (R, z, θ) by translating the circular approximation towards the origin and mapping the cut to an unit square cell
Determine the cut case number t and the symmetry transformation if $\theta > \pi/4$. *Table 2, Appendix A*
Normalize the radial and angular position
Evaluate moments by calling the spline interpolant corresponding to the parameter set $(R, \hat{z}, \hat{\theta}, t)$ *Eq. (15)* $\rightarrow \mathbf{y} \rightarrow$ *Eq. (3)*
Apply symmetry transformation
Map moments from a unit square to the physical cell
Cut is concave?
yes
Compute the complement of the moment on the cell domain Ω
no
Evaluate Berstein basis at Gauss quadrature points $\mathbf{A} \rightarrow$ *Eq. (3)*
Solve the moment fitting equation at Gauss quadrature points and return the moment fitted rule *Eq. (3)* $\rightarrow \mathbf{w}$
Stop