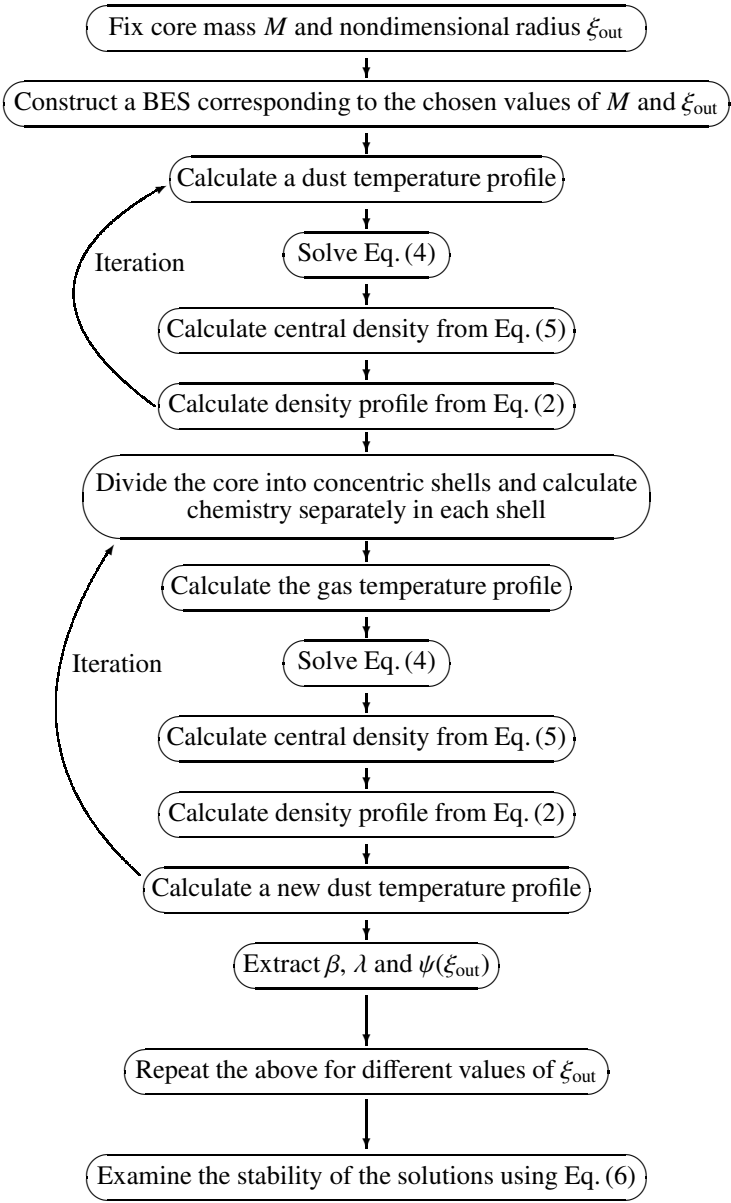
Fix core mass M and nondimensional radius ξ_{out}
Construct a BES corresponding to the chosen values of M and ξ_{out}
Calculate a dust temperature profile
Iteration
Solve Eq. (4)
Calculate central density from Eq. (5)
Calculate density profile from Eq. (2)
Divide the core into concentric shells and calculate chemistry separately in each shell
Calculate the gas temperature profile
Iteration
Solve Eq. (4)
Calculate central density from Eq. (5)
Calculate density profile from Eq. (2)
Calculate a new dust temperature profile
Extract β, λ and $\psi(\xi_{out})$
Repeat the above for different values of ξ_{out}
Examine the stability of the solutions using Eq. (6)