Transient analysis of temperature distribution in a disk

Consider copper disk being at thermal equilibrium with air. At moment t = 0 a heat source with known temperature was placed across internal face (highlighted with red). Temperature of ambient air remains unchanged. Heat exchange between external face (highlighted with blue) and air should be neglected. The goal is to compute temperature distribution as a function of radius and time. Consider the best way of representing results of simulation from visualization point of view.

You have to implement this algorithm in MATLAB without using any additional toolboxes and third-party components. Solution should also provide a short explanation in English.

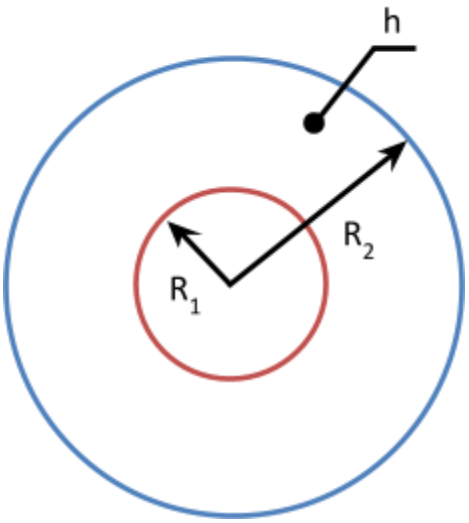

Figure 1 – geometric shape of the disk

Material heat capacity [J/(m^3·K)]	$3.45 \cdot 10^6$
Material heat conductivity [W/(m·K)]	401
Disc thickness h [m]	$1 \cdot 10^{-4}$
Internal disc radius R_1 [m]	0.03
External disc radius R_2 [m]	0.06
Heat transfer coefficient with ambient air [W/(m^2·K)]	20
Air temperature [K]	293
Temperature across internal face [K]	400