

Exercise 12

Solve the three-dimensional wave equation in $\{r \neq 0, t > 0\}$ with zero initial conditions and with the limiting condition

$$\lim_{r \rightarrow 0} 4\pi r^2 u_r(r, t) = g(t).$$

Assume that $g(0) = g'(0) = g''(0) = 0$.