Here’s some math:

$$ϕ\_{n}\left(κ\right)=\frac{1}{4π^{2}κ^{2}}\int\_{0}^{\infty }\frac{sin\left(κR\right)}{κR}\frac{∂}{∂R}\left[R^{2}\frac{∂D\_{n}\left(R\right)}{∂R}\right] dR$$