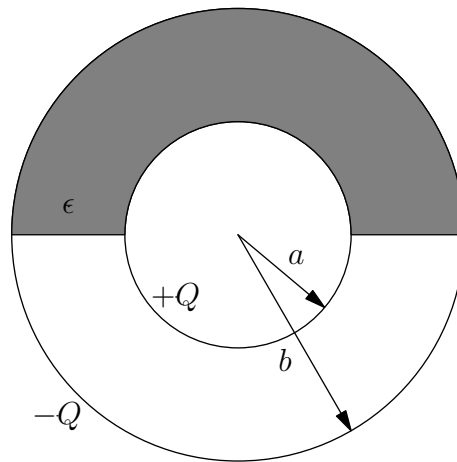


J05E.1 - Spherical Half-Filled Capacitor

Problem

Two concentric conducting spheres of radii a and b carry charges $+Q$ and $-Q$ as shown. The radial gap between the spheres is half filled with a material of dielectric constant ϵ and half filled with vacuum.



- Find the electric field \vec{E} and the displacement field \vec{D} everywhere between the spheres.
- What is the bound charge density on the surfaces of the dielectric?