

## Electrostatic Puzzle: The Charged Spheres

### Problem

Three identical small metal spheres AAA, BBB, and CCC are placed far apart from each other.

1. Initially, AAA has a charge of  $+6\text{ }\mu\text{C}$ , BBB has  $0\text{ }\mu\text{C}$ , and CCC has  $-4\text{ }\mu\text{C}$ .
2. AAA is touched to BBB and then separated.
3. Next, BBB is touched to CCC and then separated.
4. Finally, AAA is touched to CCC and then separated.

### Questions

1. What is the final charge on each sphere (AAA, BBB, CCC)?
2. Verify the total charge conservation throughout the process.