

Case 1: Long structure (600 nm)

100 nm: Highly doped ( $5 \times 10^{17} \text{ cm}^{-3}$ )

400 nm: Lowly doped ( $2 \times 10^{15} \text{ cm}^{-3}$ )

100 nm: Highly doped ( $5 \times 10^{17} \text{ cm}^{-3}$ )

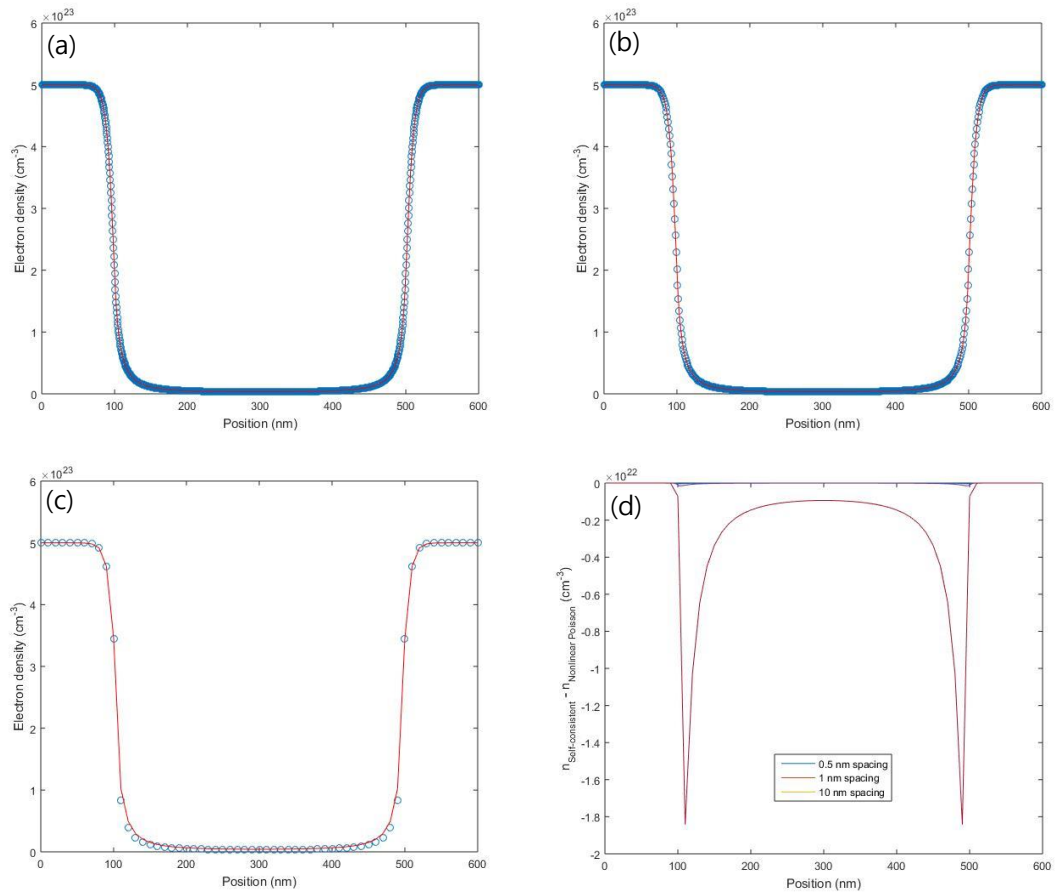


Figure 1. Self-consistent electron density and electron density calculated by the nonlinear Poisson equation at different spacing values. The red lines indicate nonlinear Poisson equation and the blue circles indicate self-consistent equation. (a) spacing: 0.5 nm (b) spacing: 1 nm (c) spacing: 10 nm (d) Their difference at the different spacing.

Case 2: short structure (120 nm)

40 nm: Highly doped ( $5 \times 10^{17} \text{ cm}^{-3}$ )

40 nm: Lowly doped ( $2 \times 10^{15} \text{ cm}^{-3}$ )

40 nm: Highly doped ( $5 \times 10^{17} \text{ cm}^{-3}$ )

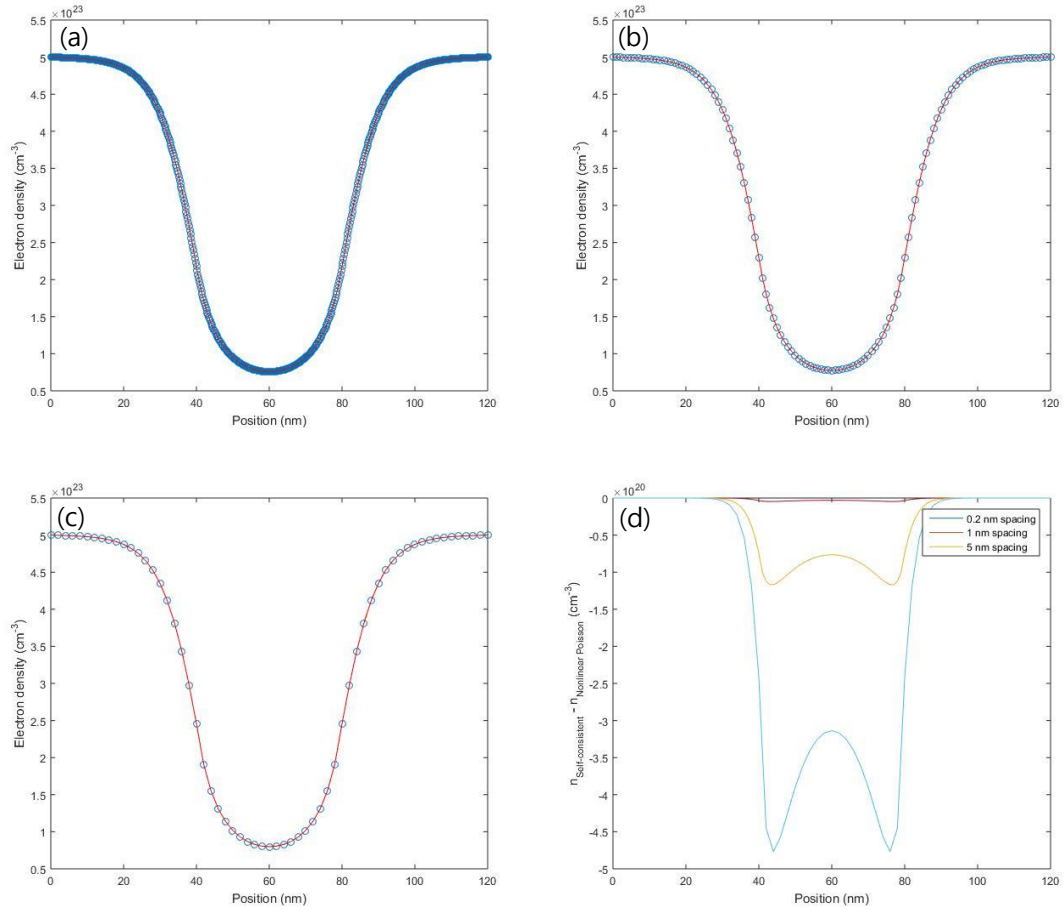


Figure 2. Self-consistent electron density and electron density calculated by the nonlinear Poisson equation at different spacing values. The red lines indicate nonlinear Poisson equation and the blue circles indicate self-consistent equation. (a) spacing: 0.2 nm (b) spacing: 1 nm (c) spacing: 5 nm (d) Their difference at the different spacing.