Homework 13

I-V curve of NNN structure & RC filter

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Introduction

In this project we calculated I-V curve of two different structure.

(1) 600-nm-long version (Long)

– 100 nm: Highly doped ($5x10^{17}$ cm^{-3})

– 400 nm: Lowly doped ($2x10^{15}$ cm^{-3})

– 100 nm: Highly doped ($5x10^{17}$ cm^{-3})

(2) 120-nm-long version (Short)

– 40 nm: Highly doped ($5x10^{19}$ cm^{-3})

– 40 nm: Lowly doped ($2x10^{17}$ cm^{-3})

– 40 nm: Highly doped ($5x10^{19}$ cm^{-3})

Also for second project we calculated current of RC circuit and compare it with analytical model.

R: 2 M ohm

C: 5 pF

Result

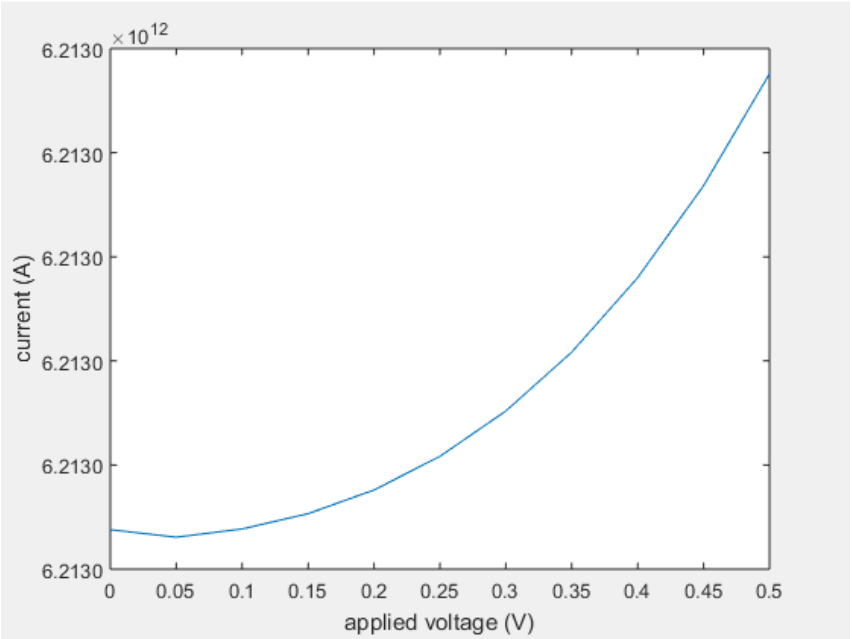

Figure 1. 600-nm-long version (Long)

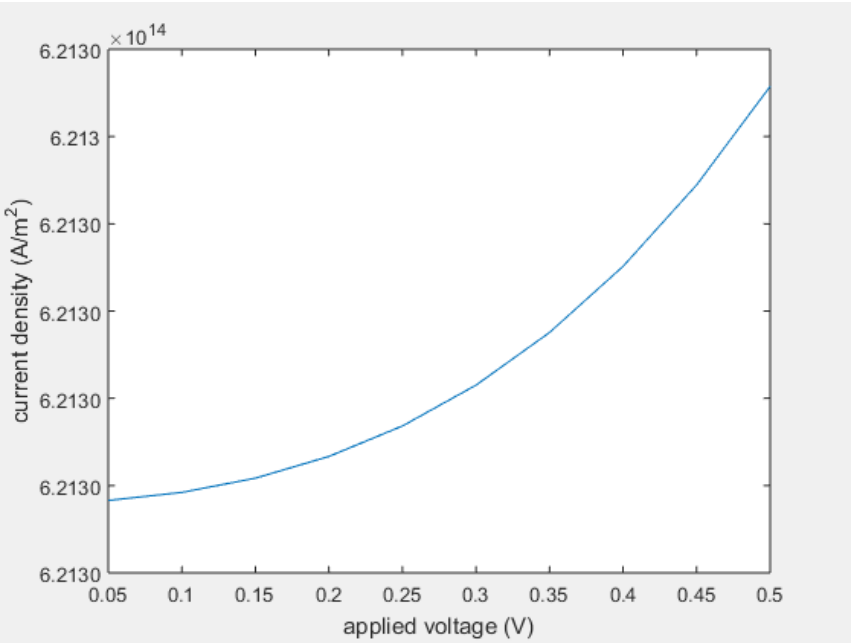

Figure 2. 120-nm-long version (Short)

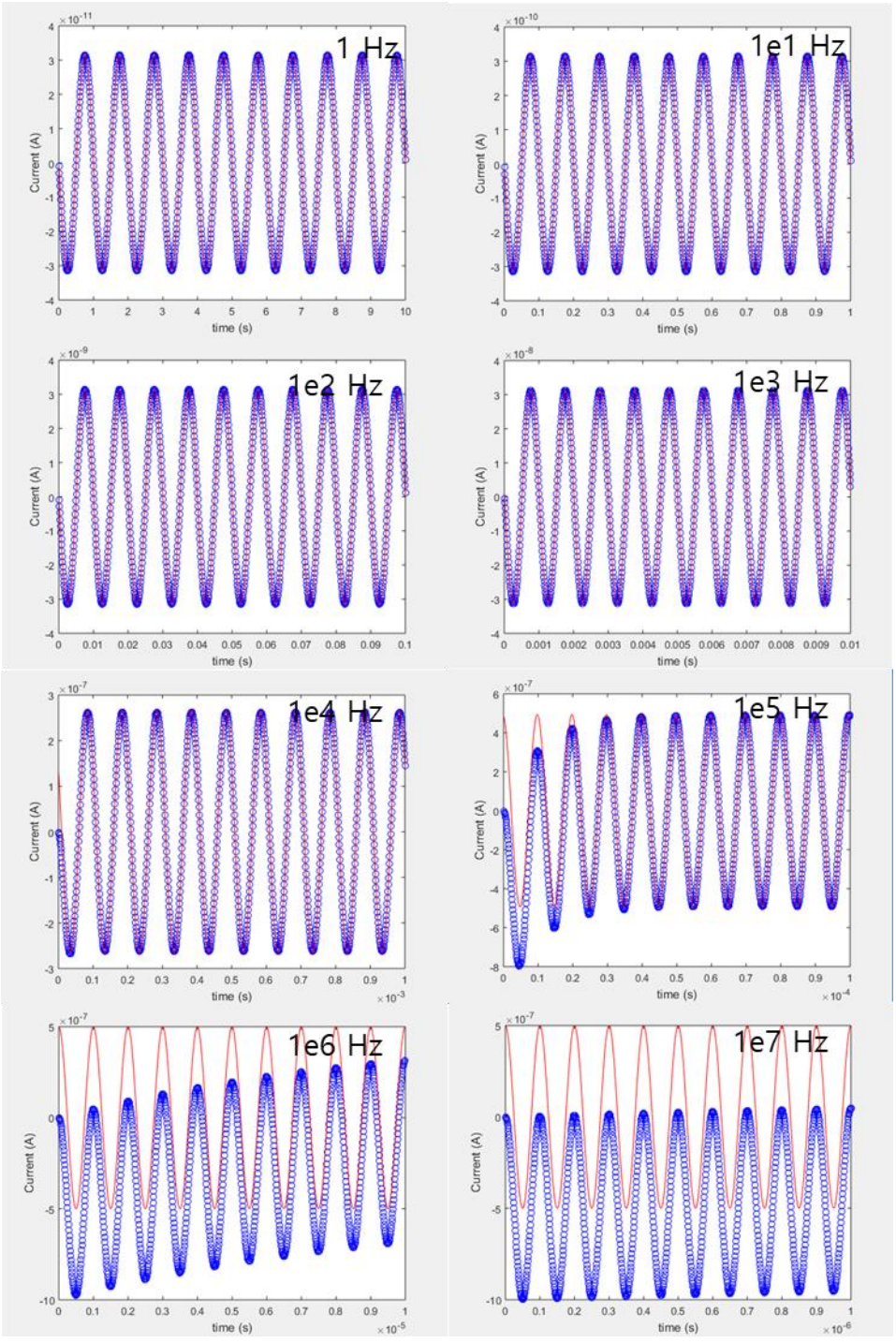

Figure 3. Current of RC circuit with respect to the frequency