Sommerfeld Integral

Horizontally Oriented Magnetic Dipole above Silver Half-plane

Hasan Tahir Abbas

Department of Electrical & Computer Engineering

ELECTRICAL & COMPUTER ENGINEERING

T E X A S A & M U N I V E R S I T Y

Integration Contour

haha

For 3D structures

$$\omega_{p,3D} = \sqrt{\frac{e^2 N_{3D}}{\varepsilon \varepsilon_0 m^*}} \qquad (1)$$

For 2D sheet based structures

$$\omega_{p,2D} = \sqrt{\frac{e^2 N_{2D}}{2\varepsilon \varepsilon_0 m^*} k} \qquad (2)$$

Two-dimensional Electon Gas (2DEG)

Introduction

- Semiconductor Interface
- Quantum Well
- High electron Mobility
- High Charge concentration