

## Chapter 2

# Introduction to Superconductivity Theory

### 2.1 First experimental observations

Vanishing resistance below critical temperature, Meissner-Ochenselfed effect, ...

### 2.2 London equations

First and second London equations

### 2.3 BCS theory

Small attraction between two electrons[1], Cooper pairs, BCS ground state, energy gap, critical temperature, supercurrents, demonstration of London equations from BCS ground state

### 2.4 Josephson effect

Cooper-pair tunneling, simple explanation without second quantization formalism