

物理名詞練習

Charge is quantized 電荷是量子化的

Charge is conserved [kən'sə:vɪd] 電荷是守恆的

Electric fields 電場

Electric field lines 電力線

Electric potential [pə'tenʃəl] 電位

Equipotential [i:kwɪpə'tenʃəl] **surface** 等位面

Electric dipole 電偶極

Dipole moment 偶極矩

Point charge 點電荷

Continuous charge distribution 連續電荷分佈

Discrete charge distribution 不連續（離散）電荷分佈

Isolated [ˈaɪsəleɪtɪd] **conductor** 孤立導體

surface [ˈsə:fɪs] 面、表面

A Gaussian surface means a closed surface.

surface integral 面積分

theory [ˈθi:əri] 理論、學說

special theory of relativity 特殊相對論

law 定律

general law of gravity 萬有引力定律

the second law of thermodynamics 熱力學第二定律

theorem [ˈθiərəm] 定理

work-energy theorem 功能定理 ($W = \Delta K$)

flux [flʌks] 通量

electric flux 電通量

magnetic flux 磁通量

capacitor [kəˈpæsɪtə] 電容器

A capacitor is a device.

parallel-plate capacitor 平行板電容器

cylindrical capacitor 圓柱電容器

capacitance [kəˈpæsɪtəns] 電容

Capacitance is a physical quantity.

perpendicular [ˌpə:pənˈdɪkjʊlə] 垂直的(+to)

y-axis is perpendicular to x-axis.

parallel [ˈpærəlel] 平行、並聯的，

parallel-axis theorem 平行軸定理

parallel circuit [ˈsə:kɪt] 並聯電路

ε [ˈepsɪlən] 希臘字母第 5 個字母

ε_0 is read as epsilon naught.

ε_0 gives the permittivity constant (真空介電常數).

Conductor 導體

A metal is a good conductor.

Insulator [ˈɪnsjuːleɪtə] 絕緣體

A ceramics is a good insulator.

Semiconductor [ˌsemɪkənˈdʌktə] 半導體

Silicon and germanium are semiconductors.

Superconductor [ˈsju:pəkənˈdʌktə] 超導體

Mercury turns into a superconductor at 4.2K.

Dielectric [ˌdaɪˈlektɪk] 電介質(可被極化的非導體)

A plastics is a typical dielectric.

Vector 向量，**scalar** 純量

A electric current is a scalar.

A electric current density is a vector.

Electric current 電流

Battery 電池， **in series** ['siəri:z] 串聯

Please connect the batteries in series.

Resistor [ri'zistə] 電阻器

A resistor is a device.

Resistance [ri'zistəns] 電阻

Ohm is the unit for resistance.

Ampere ['æmpɛə] 安培， **volt** [vəʊlt] 伏特

One ohm equals one volt per ampere.

Coulomb ['ku:lɒm] 庫侖

One ampere equals one coulomb per second.

Coulomb's law.

Resistivity 電阻率

Ohm-meter is the unit for resistivity.

Conductivity [kɒndʌk'tiviti] 導電率，

reciprocal [ri'siprəkəl] 倒數，

Conductivity is the reciprocal of resistivity.

mho [məʊ] 姆歐

Mho per meter is the unit for conductivity.

Dissipation [disi'peɪʃən] 耗損

Resistivity implies energy dissipation. 電阻率蘊含了能量損耗。

ρ (**rho**) 希臘字母第 17 個， $\sim r$. σ ['sigmə] 希臘字母第 18 個， $\sim s$

例句練習

surface [ˈsəːfɪs] 面、表面

A Gaussian surface is a closed surface in three dimensional space.

flux [flʌks] 通量，**theorem** [ˈθiərəm] 定理，**theory** [ˈθiːəri] 理論、學說

Gauss's law is also known as Gauss's flux theorem.

perpendicular [ˌpɜːpənˈdɪkjʊlə] 垂直的(+to)

An area vector is always perpendicular to its surface.

capacitor [kəˈpæsɪtə] 電容器，**capacitance** [kəˈpæsɪtəns] 電容，

parallel [ˈpærəlel] 平行、並聯的， ϵ [ˈepsɪlən] 希臘字母第 5 個字母

A parallel-plate capacitor consists of two parallel conducting plates of area A separated by a distance d.

The capacitance of a parallel-plate capacitor equals $\epsilon_0 \frac{A}{d}$, where ϵ_0 is the permittivity constant.

Dielectric [ˌdaɪiˈlektɪk] 電介質(可被極化的非導體)

Plastics is a typical dielectric.

Vector 向量，**scaler** 純量

Electric current is a scaler while electric current density is a vector.

1. 等溫過程中，溫度保持不變。

Temperature is kept constant in the isothermal processes.

2. 絕熱過程中熱傳輸是被禁止的。

Heat transfer is forbidden in the adiabatic processes.

絕熱過程中能量以熱的方式傳輸是被禁止的。

Energy transfer as heat is forbidden in the adiabatic processes.

3. 定容過程是不作功的。

No work is done in a constant-volume processes.

4. 等壓過程中壓力是不變的。

Pressure is kept constant in the isobaric processes.

5. P-V 圖上任何的曲線皆表示准靜態過程，換言之，也是可逆過程。

Any curve on the P-V diagram represents a quasi-static process, i.e., a reversible process.

6. 基於氣體動力論，理想氣體的溫度反映了氣體分子的平均動能。
According to the kinetic theory of gases,
the temperature of an ideal gas is an indication
of the average kinetic energy of the gas molecules.
7. 基於氣體動力論，理想氣體的壓力來自氣體分子對容器壁的碰撞。
According to the kinetic theory of gases, the pressure of a gas comes from
the collisions of the molecules to the walls of the container.