

### A Summary of Some Units

| Dimension          | Symbol     | Defining Relationship                | MKSA Units                     |
|--------------------|------------|--------------------------------------|--------------------------------|
| Length             | $L$        |                                      | $m$ (meter)                    |
| Mass               | $M$        |                                      | $kg$ (kilogram)                |
| Time               | $T$        |                                      | $sec$ (second)                 |
| Temperature        | $^{\circ}$ |                                      | $^{\circ}K$ (kelvin)           |
| Charge             | $Q$        |                                      | $C$ (Coulomb)                  |
| Force              | $\vec{F}$  | $\vec{F} = m\vec{a}$                 | $N$ (Newtons)                  |
| Energy             | $E$        | $E = \int_C \vec{F} \cdot d\vec{r}$  | $J$ (Joules)                   |
| Power              | $P$        | $P = \frac{dE}{dt}$                  | $W$ (Watt)                     |
| Pressure           | $p$        | $p = F/m^2$                          | $Pa$ (Pascal)                  |
| Frequency          | $f$        | $f = 1/T$                            | $Hz$ (Hertz)                   |
| Amp                | $A$        | $A = \frac{dq}{dt}$                  | $A$ (Amp)                      |
| Volt               | $V$        | $V = -\int_C \vec{E} \cdot d\vec{r}$ | $V$ (Volts) - work/unit charge |
| Capacitance        | $C$        | $C = \frac{Q}{V}$                    | $F$ (Farad)                    |
| Electric Field     | $\vec{E}$  | $\vec{F} = q\vec{E}$                 |                                |
| Resistance         | $R$        | $V = IR$                             | $\Omega$ (Ohm)                 |
| Conductivity       | $\sigma$   | $\sigma = \frac{1}{R}$               | $mho$ (Siemen)                 |
| Magnetic Induction | $\vec{B}$  | $\vec{F} = q\vec{v} \times \vec{B}$  | $T$ (Tesla)                    |
| Stress             | $\sigma$   | $\sigma = F/m^2$                     | $Pa$ (Pascal)                  |
| Mass density       | $\rho$     |                                      | $kg/m^3$                       |
| Entropy            | $S$        |                                      | $J/^{\circ}K$                  |