

**Centre Universitaire Mila**

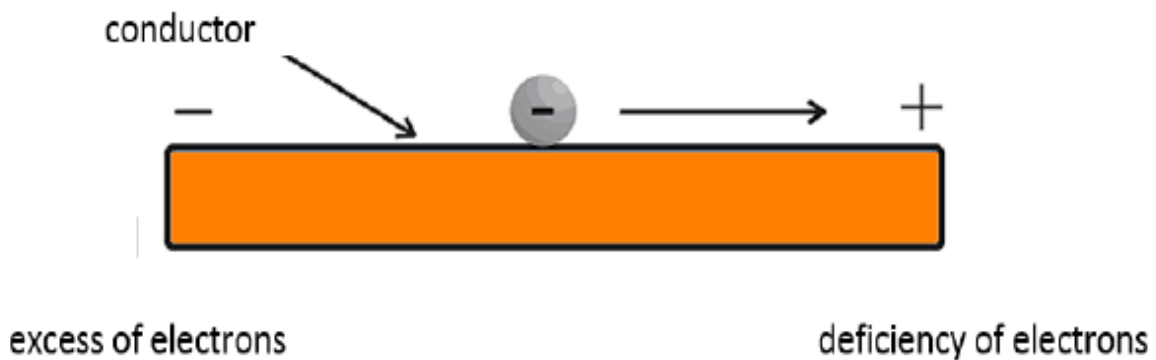
**Département des Sciences et Techniques**

**Spécialités: Génie Mécanique / Electromécanique**

**Module : Anglais technique et terminologie**

### **Lecture 03**

In 1862, **George Simon Ohm**, a German scientist, first established reliable and experimentally proved **facts about electricity**. He found that the electric charge displacement from one end of a conductor to another depends of three values; **Electromotive force**, **current** and **resistance**. **Ohm** formulated the **relation** between **these parameters** by what we call **Ohm's law**.



**The Electromotive force**, usually abbreviated **EMF**, also called **voltage**, is the force or pressure that moves electrons through the conductor. The **EMF** is due to the excess of electrons at one end of the conductor with respect to the other, as illustrated in the figure above. Thus, **the greater this excess the greater is the EMF**. The EMF unit is Volt (V).

**Metals** like gold, silver, copper or aluminum have very low **specific resistance**, or **resistivity**; therefore, they are **good conductors**. The resistance of any conductor depends on the resistivity, conductor length and its cross-section area.

Sometimes, the temperature effects is also taken into account

The **flow** of **electrons** from one end of the **conductor** constitutes an **electric current**. On their way, some of them **collide** with **atoms** that oppose them a certain resistance called **electric resistance**. The **greater** the **number of free electrons** in the conductor, **the lower** is its **resistance**.

*Ms. Bouhaddad*

The current intensity, strength or amount of current represents the charge quantity flowing through the cross-section of the conductor per unit of time. This intensity depends upon the potential difference and the conductor resistance as follows:

$$I = \frac{V}{R}$$