

**Zaporizhzhya State Medical University  
Analytical Chemistry Department**

# **ELECTRODE PROCESSES**

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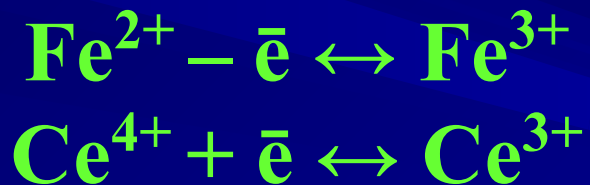
**The reactions accompanied by a change  
of atom oxidation number of elements  
are called  
oxidation-reduction reactions.**

**The particles which accept electrons  
are called oxidizers.**

**The particles which donate electrons  
are called reducers.**



Oxidized and reduced forms of one substance involved in the half-reaction compose *redox couple*:



**Electrode or redox potential (E)**

**is the quantitative measure of  
redox power of different redox  
reactions.**

A conductor (metal) immersed into a solution of its salt is called electrode

Potential difference arising on the electrode-solution interfase is called electrode potential

Potential difference between electrodes is known as electromotive force (EMF)

$$EMF = E_{\text{cathode}} - E_{\text{anode}}$$

*EMF of a chemical reaction is equal to  
difference between redox potentials of  
a redox couple*

$$EMF = E_{ox} - E_{red}$$



The potentials difference that occurs in the tissues of living organisms is called bioelectric potential.

# *Redox and membrane potential in biology and medicine*

- Many organs, such as heart, brain, muscles, eyes manifest their function through electric activity
- Therefore such diagnostic methods as electrocardiogram, electroencephalogram, electromyogram and electrooculogram are used