

Tsvetina Dobrovolska is a habilitated researcher in the Institute of Physical chemistry, Bulgarian Academy of sciences.

She has a diploma of engineer from Moscow, Mendeleev Chemical University, PhD thesis she defenses in 2005 in the Institute of Physical Chemistry, Bulgarian Academy of Sciences, and she became a Doctor of Sciences in 2015.

The major fields of scientific research are: Physical Chemistry, Electrochemistry; Electrodeposition and properties of metals and alloys; Formation of spatio-temporal structures during electrodeposition of alloys; non-linear processes, self-organization processes.

Her international experience is connected with

Award of Mianowski fund (Polish Scientific Award) – 3 months in AGH University of Science and Technology in 2008; in 2005

Reintegration grant of European Commission, and Marie Curie Fellowship of the European Community Programme (in 2004).

She worked in the industrial project with UMICORE, Germany – from 2006-at present.

She has 42 papers in peer-reviewed journals; and more than 100 citations. Also, she was a supervisor of two successfully defended PhD students and recently also is a supervisor of 2 doctorate.

#### **Abstract of the presentation:**

An attempt to summarize the available information about the electrodeposition of indium and indium alloys is made. Nowadays, indium is becoming an attractive alloying element enhancing the spectrum of properties of the basic metals. Some attention is focused on the special features of electroplating of indium from aqueous solutions and its possible perspectives for practical application.

Indium alloys have characteristics that depend on such specific to indium properties as low melting point, high plasticity, and corrosion resistance.

An improved corrosion resistance compared with nickel is observed in the nickel-indium alloy. The alloys of indium with bismuth, antimony, and tin are used for solders.

The co-deposited indium contributes to the significant decrease of the internal stress of the palladium and ruthenium coatings.

Decorative coatings of various colors are obtained by co-depositing of indium, palladium, and gold.

Self-organization phenomena are observed during electrodeposition of several indium alloys – with silver, cobalt, palladium and gold. In this case, the increase in the content of the alloying element in electrodeposited alloys reflects the changes of their phase composition when the saturation limit of the lattice of the basic metal is reached.