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**The impact of M Faraday's work on the development of natural science****Essen N Suleimenov**

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The scientific heritage of M Faraday in the conditions of the modern crisis in natural science plays a decisive role in the development of ideas about the nature of the chemical bond and the practical use of chemical processes. In the 20<sup>th</sup> century, a huge experimental material was obtained, which confirms the correctness of M Faraday's views on the effect of electric current on chemical reactions. It was shown in that electrolysis occurs only in the places where the current flows. But electrochemistry has gone on the wrong path, which ultimately led to unjustifiably high losses of funds and labor in developing technologies for extracting metals from complex raw materials. In recent years, researchers have published an increasing number of materials aimed at establishing the principle of the formation of liquid systems and the determination of the mechanism of transport of an electric current through a liquid in the light of the theory of M Faraday. However, in the development of modern natural science the following basic thesis of the works of M Faraday plays: Identity of energy manifestations in the interaction of material objects and; the discrete nature of the electric current. The discrete nature of the electric current makes it possible to use a combination of electrical conditions for organizing unusual chemical reactions. The provision on the identity of energy manifestations of the interaction of material objects provides the basis for the revision of scientific provisions on the mechanism of heat exchange between material objects. Modern science has accumulated a huge amount of experimental material, including the unusual behavior of condensed systems under the influence of various energy effects, which gives grounds for revising the basic fundamental provisions of physical chemistry and theoretical inorganic chemistry.

**Recent Publications**

1. Utelbayev B T, Suleimenov E N and Utelbayeva A B (2015) Interconnection of heat and mass changes of the reacting substances at physical and chemical transformations. *Journal of Chemical, Biological and Physical Sciences. Section C* 5(2):1783-1790.
2. Utelbayev B T, Suleimenov E N and Utelbayeva A B (2017) The essence of temperature and its relationship with thermal state of the system. *International Journal of Scientific Research in Science, Engineering and Technology* 3(2):678-684.

**Biography**

Essen N Suleimenov graduated from the Kazakh Mining and Metallurgy Institute, Metallurgy Faculty in 1960 with a specialty of Metallurgical Engineer in the area of non-ferrous, rare and precious metals. He is a Candidate of Technical Sciences (1970), Senior Research Associate (1981), Doctor of Technical Sciences (2005). He is a Fellow of the International Informatization Academy (2004) and Member of the European Academy of Natural Sciences (2007). After graduation he was assigned to work in the Institute of Metallurgy and Ore Beneficiation of the Academy of Sciences of Kazakh SSR. During his work in IMaOB he performed the job duties of a Senior Laboratory Technician (1960-1961); Engineer (1961-1963); Junior (1963-1971) and Senior (1972-1986, 1995-2000) Research Associates; Research Team (multidisciplinary) Leader (1985-1995); Head of Laboratory (2004-2005); Head of Department (2005-2006); Deputy Director for Science (2000-2004) and; Acting Director of the Institute of Metallurgy and Ore Beneficiation (2004).

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