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3. Zirconium Oxyhydrate Gels with Specifically Repeated Pulsation Macromolecules' Organizations: the Experimental Aspect 3.1 Some of the TGM's Experimental Results; 3.2 Oxyhydrate Clusters Structuring in Non-Equilibrium Conditions; 3.3 the Way the Ageing Time Affects the Sorption Properties of the Zirconium Oxyhydrate; 3.4 Conclusions; 4. Modeling of the Oxyhydrate Gels' Shaping in an Active Excitable Medium. the Phase Transition Operator in Gels' Oxyhydrates (the Liesegang Operator) 4.1 Modeling of Autowave Shaping Processes in D- and F- Elements' Oxyhydrate Gels. the Simplest Mathematical Model of the Reaction-Diffusion Type 4.2 Studies of a Modeled Oxyhydrate System; 4.3 Modeling of the Gel Shaping in an Active Excitable Medium by Means of the Molecular Dynamics Methods and the Monte Carlo Method; 4.4 Coulomb Diffusion Model; 5. Liesegang Operator; 4.5 Conclusions; 5.1 Liesegang Operator as a Reflection of the Gel Polymer Systems' Oscillatory Properties. Introduction of the Liesegang Operator; 5.2 Studying a Highly Nonlinear Diffusion Equation; Abstract 5.1 Theorems Abstract 5.2 Gel's Formation Stationary Problem 5.3 Simplified Notation for the Liesegang Operator; 5.4 Hydrodynamic Approach; 5.5 Liesegang Operator and some Experimental Data; 5.6 Conclusions; 6. Liesegang Operator as a Consequence of the Ionic Molecular Motion inside the Lenard-Jones Potential; 6.1 Single-Particle Problem. Cluster's Motion in the Field of the Lenard-Jones Potential; 6.2 Cluster Motion in the Lenard-Jones Potential; 6.3 Experimental Detection of the Current Surges' Periodical Toroid Conformations in the Gel Oxyhydrate Systems, the Structural Self-Organization Stages Abstract 6.1 Formative Characteristics of Zirconium Oxyhydrate Conformers

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Sommario/riassunto

The importance of coherent chemistry, that is, the chemistry of periodic oscillatory processes, is increasing at a rapid rate in specific chemical disciplines. While being perfectly understood and highly developed in the fields of physical chemistry, chemical physics and biological chemistry, the periodic developmental paradigm of processes and phenomena still remains poorly developed and misunderstood in classical inorganic chemistry and related branches, such as colloid chemistry. The probability is that we miss subtle colloid chemical phenomena that could be of utmost importance if taken in

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