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## Polymerization in monomer-water heterogeneous systems

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Polymerization in monomer-water heterogeneous systems has special properties different from those of other methods of radical polymerization. These properties are detected when the polymerization is conducted in highly disperse systems, or what is common to be considered as emulsion polymerization (EP). The main components of emulsion polymerization are the monomer, water, emulsifier and initiator. Usually emulsifier molecules don't participate in the elementary acts of polymerization; however, the rate and degree of EP are increased simultaneously when the concentration of the emulsifier is increased. There are many theories and models that describe the mechanism of emulsion polymerization. In some of these, the authors introduce the emulsifier concentration in the kinetic equations of radical polymerization. These models and theories are briefly discussed in this presentation. The main purpose of this report is to represent the results of several experimental studies that show a possible link between the specifics of EP and physical and chemical processes occurring at monomer-water interfaces. In these experiments, the polymerization is carried out without the use of emulsifier under static conditions in styrene-water, vinyl acetate-water and chloroprene-water systems, from which is clearly visible the topological picture of dispersed particles generation in a narrow interface of the monomer–water system.

### Biography

Arnos Arshaki Hovhannisyan received his Doctorate from the Moscow Technical Institute of Fine Chemical Technology. He is a Doctor of Chemical Sciences and Professor. He is Head of the Laboratory of Polymer Dispersions. He has published more than 100 works in well-known journals and a monograph titled "The Theory of Emulsion Polymerization".

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