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ΣΧΟΛΗ ΧΗΜΙΚΩΝ ΜΗΧΑΝΙΚΩΝ

ΔΙΑΛΕΞΗ

Design of experiments and process modeling: Some classical ideas and some recent novel developments

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Περίληψη
The seminar starts with a short review of the advantages and limitations of the following two types of models: Knowledge-Driven and Data-Driven. It also reviews the classical data-driven approach of process understanding and modeling, the Design of Experiments (DoE) methodology. To ameliorate two limitations of this methodology, we have introduced two generalizations. The first one, called Design of Dynamic Experiments, enables the design of experiments with time varying inputs, such as the time dependence of the reaction temperature or the feeding profile of a co-reactant. The second one addresses the modeling of the process output when there are several time-resolved measurements. The last one is a generalization of the classical Response Surface Model and it is called Dynamic Response Surface Model (DRSM). We conclude with industrial example applications of these two innovations from collaborations with Pfizer, Dow Chemicals and ExxonMobil.

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