Session 2: Modeling and Control
14:40 – 15:00, 14th, July

Applications of Data-driven Modeling on Control and Optimization of Distillation Process
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Distillation process is the most widely used separation process in petroleum chemical industries and other chemical industries. Large inertia delay exists in the response of product quality in a distillation process, especially a high purity distillation process. It is difficult to ensure the product quality smoothness and operation optimization to achieve the maximum production profit. Based on the analyzed conclusion that split ratio and separation factor are the key factors of maintaining the stability of product quality, a novel stable quality control method is proposed. Furthermore, an integrated control and optimization strategy and the overall framework of implementation are presented based on the stable quality control method, dynamic feedback optimization and steady-state optimization. In this strategy, both control model and dynamic feedback optimization model are using dynamic model, which is constructed with model identification method. And the steady-state optimization model is using steady-state one, which is built with RBF NN or AHH, etc. Relatively, the AHH model shows advantages on modeling accuracy, model complexity, and computation power of optimization especially.