**Li Sun**, Huajie Zhang, Separation Process Optimization under Uncertainty by Chance Constraint Programming with Recourse, the 12th International Symposium on Process Systems Engineering and 25th European Symposium on Computer Aided Process Engineering (PSE2015/ ESCAPE 25), 31 May- 4 June, Copenhagen, Denmark

In this paper, the methodology of chance constraints programming with resource is proposed for the separation process optimization under uncertainty. In this approach, uncertain factors are classified into two types: the first type of uncertainties is compensated for by introducing a penalty term to the optimization objective, and the other uncertainties are expressed by chance constraints at certain confidence levels in the optimization model. The solution strategy is developed by a sequence transform hybrid algorithm involving both Monte Carlo integration and improved Benders decomposition strategies with sequential quadratic programming. 1-hexene separation process is optimized as a case study to illustrate the feasibility of the proposed strategy.