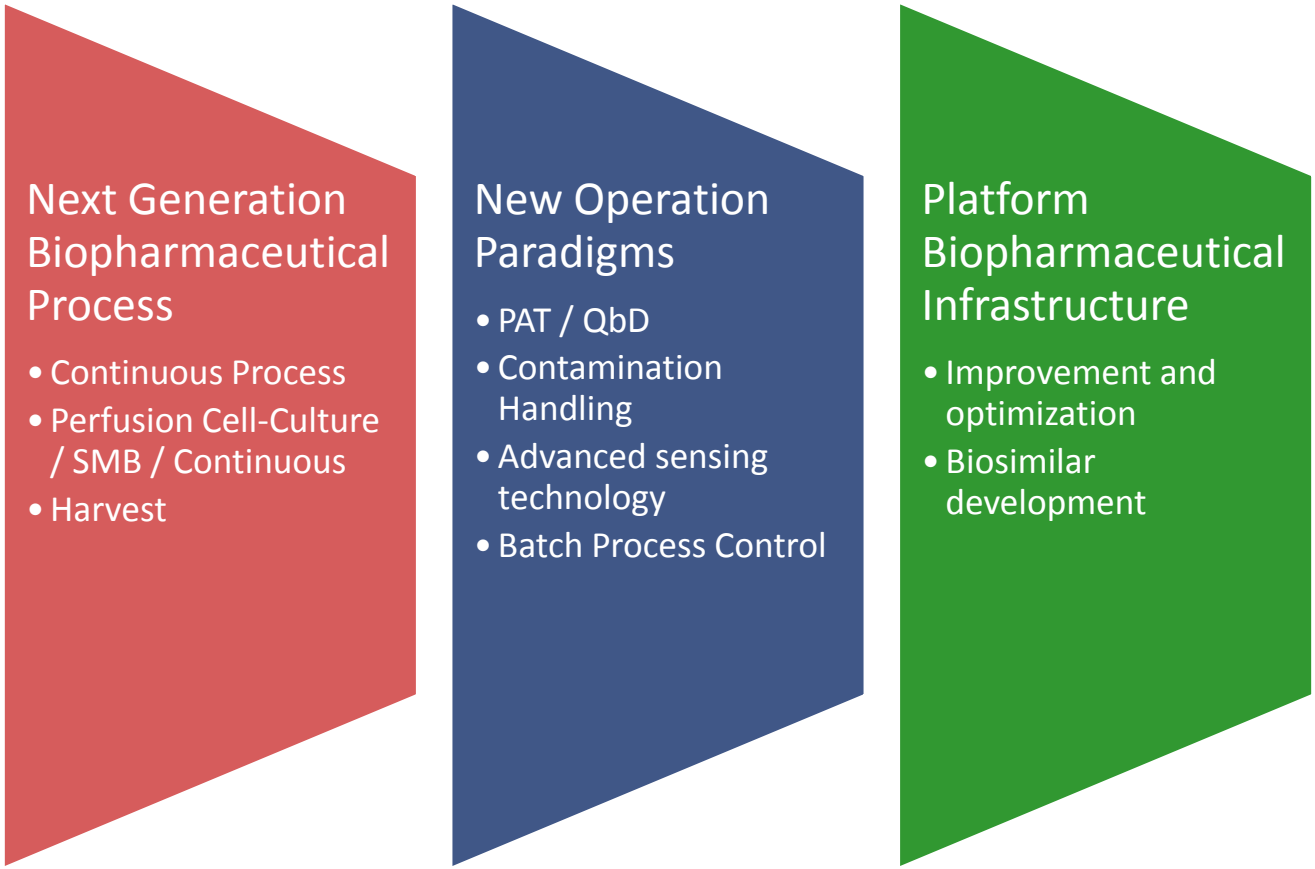
Biopharmaceutical Consortium

Developing Next Generation Bioprocessing Technology

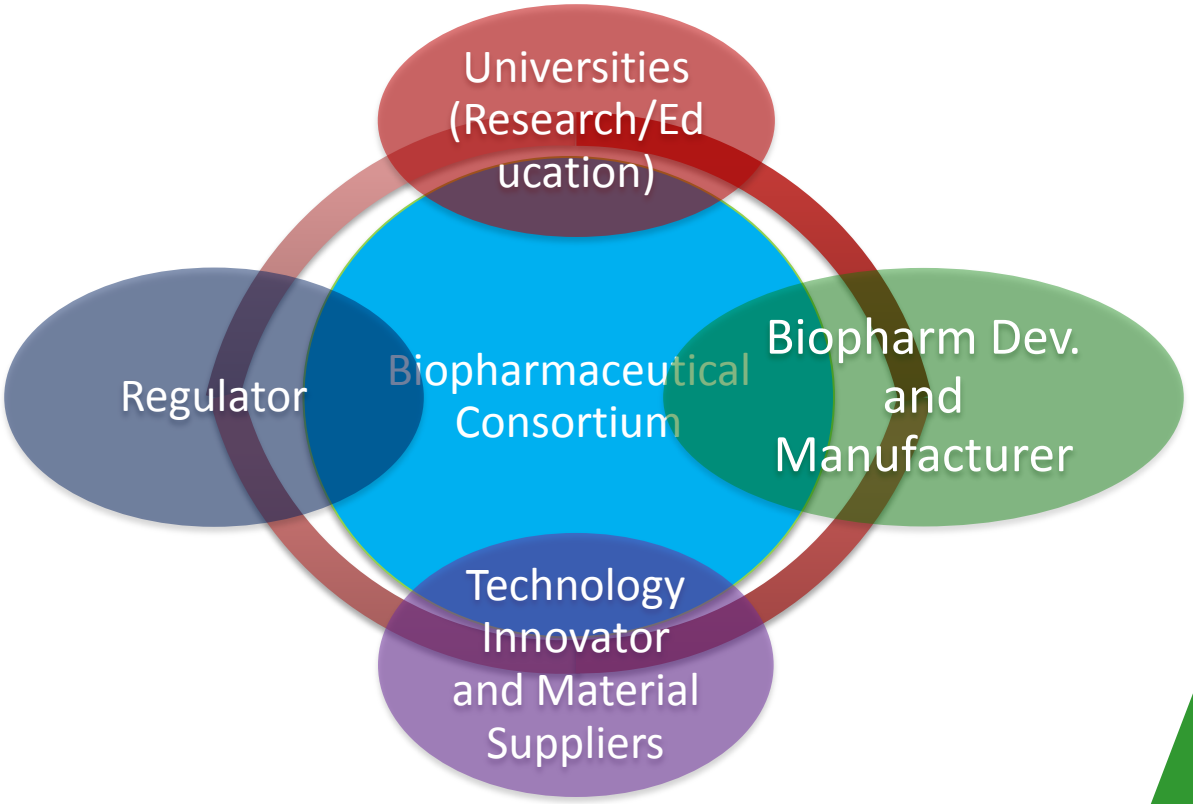


❑ **Providing Scientific and Technology Paths for Biopharmaceutical Industry**

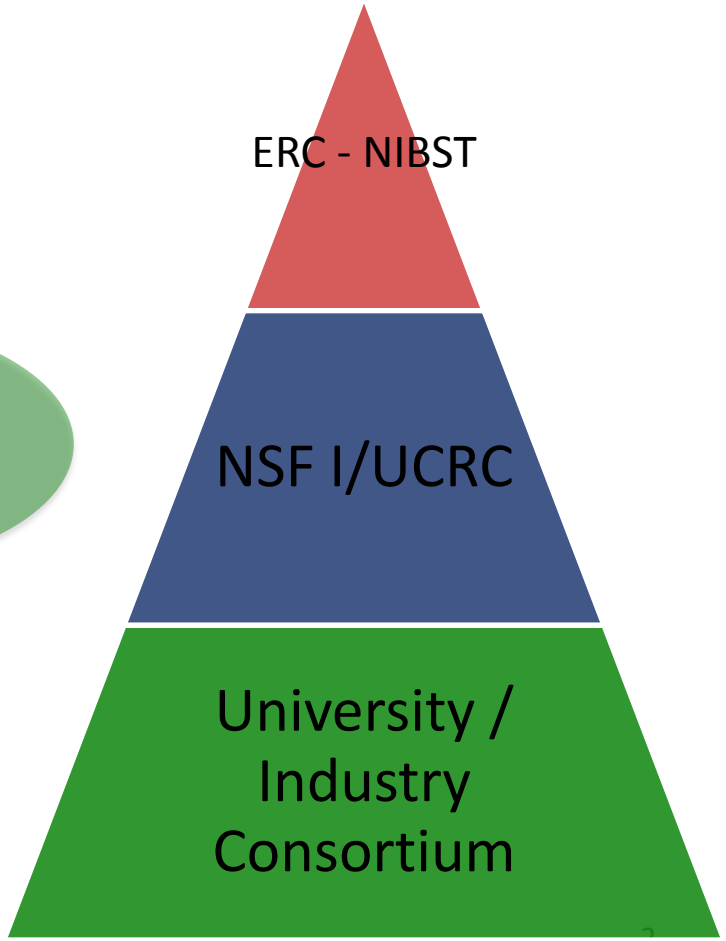
Biopharmaceutical Consortium

- Strategic Expansion of Mass BioManufacturing Center

Industry/Academic Partnership



Road Map



4th Biopharmaceutical Summit (2015)

May 18-22, 2015, Univ. of Massachusetts Lowell

Special Issues in Biopharmaceuticals : Workshop (May 2-22)

Advanced Training in Biopharmaceutical : Advanced Training (May 18-29, 2015)

Question: bpqc@uml.edu

2014 Engineering Process Analytics (Graduate Course)

Student's Term Paper Project

NBA Champion Prediction (2013-2014 season)

10.548 Engineering Process Analytics

Hangtian Shi

Chemical Engineering

Slide: Courtesy of 2014 EPA Course

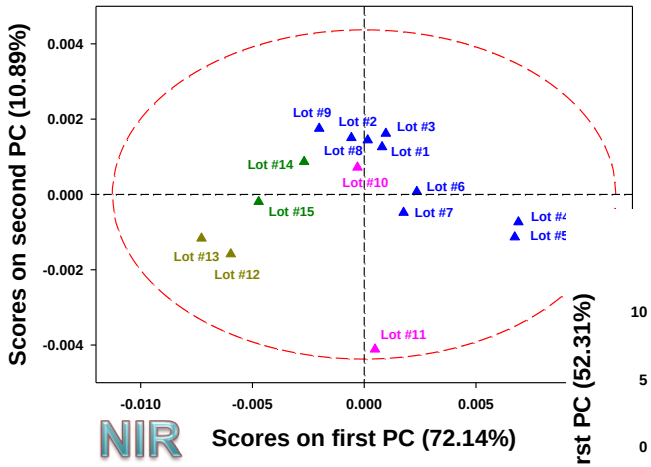
BiOPT - Biologics Optimizer

- Raw material characterization
- Robust Cell-culture Diagnostics Tools
- Robust Predictor of Product Quality Attributes
- Downstream Performance Estimator
- Design Space Tool

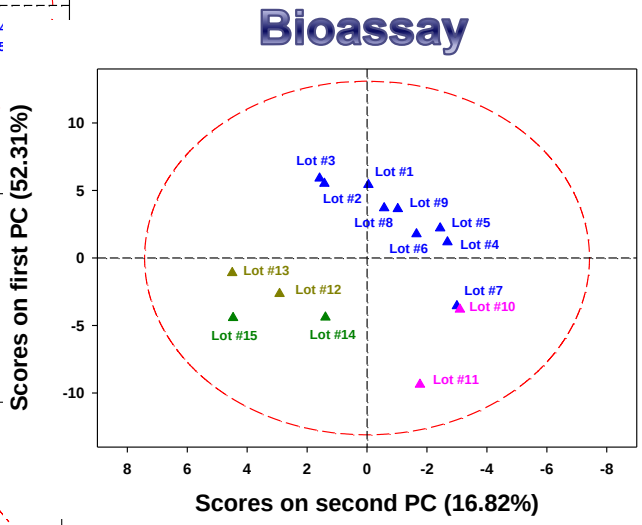
Batch Controller

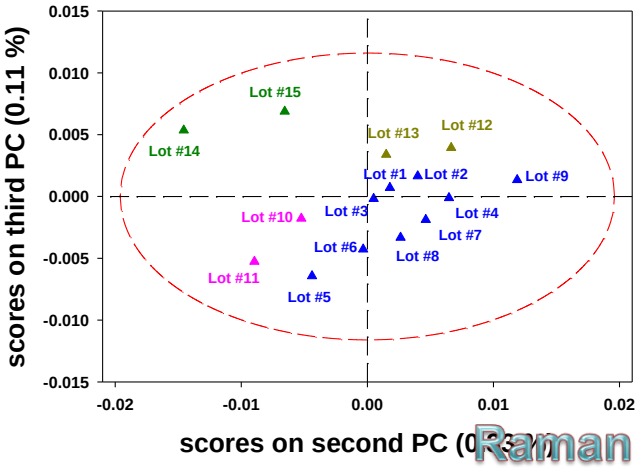
BiOPT

M1. Raw Material Assessment and Screening



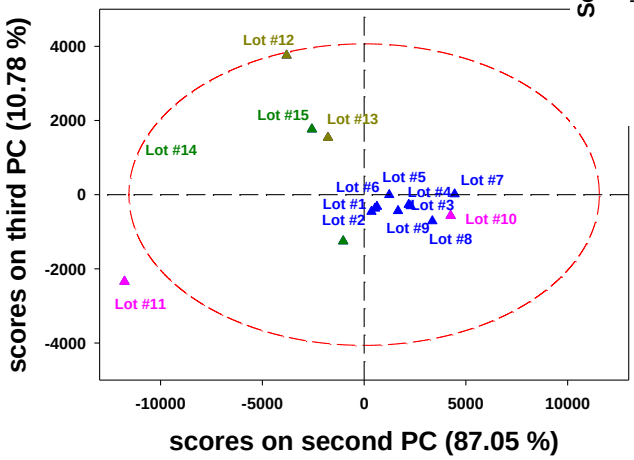
NIR



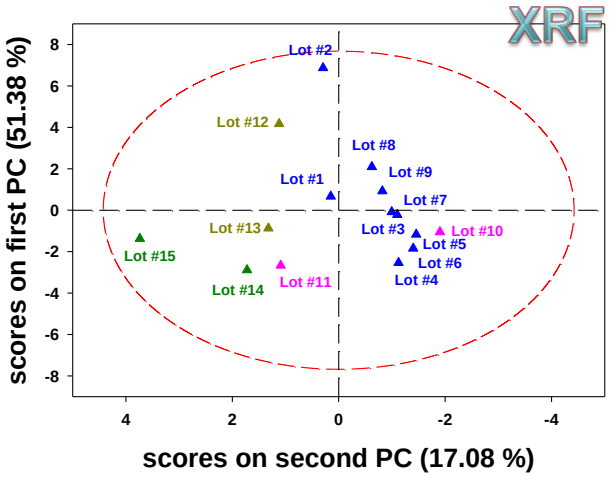


Raman

fluorescence



Different spectral measurements could identify lot-to-lot and vendor-to-vendor differences, but their information contents might be different with each other, providing complementary information about the composition of soy hydrolysates.



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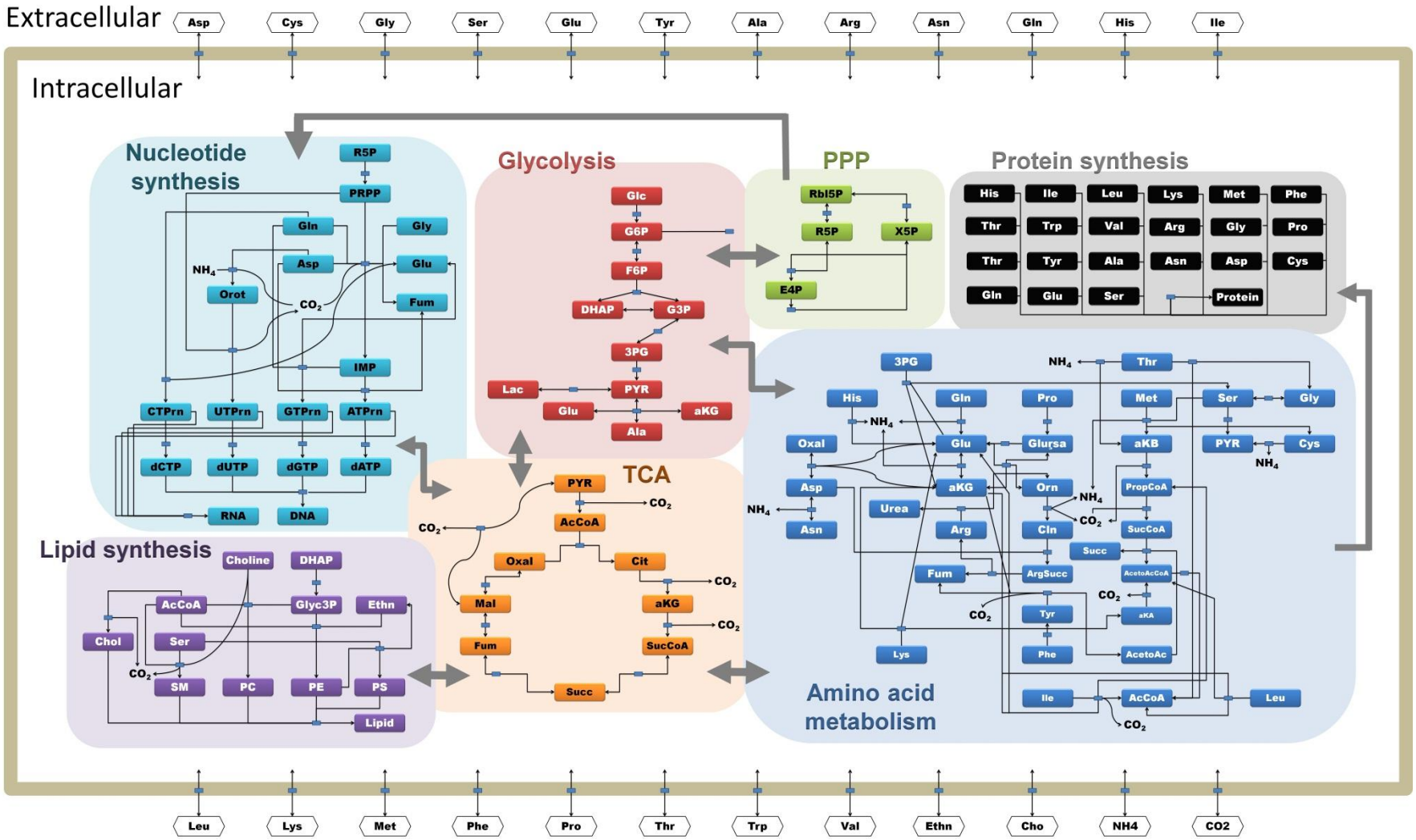
Module 2. Cell-Culture Diagnostics



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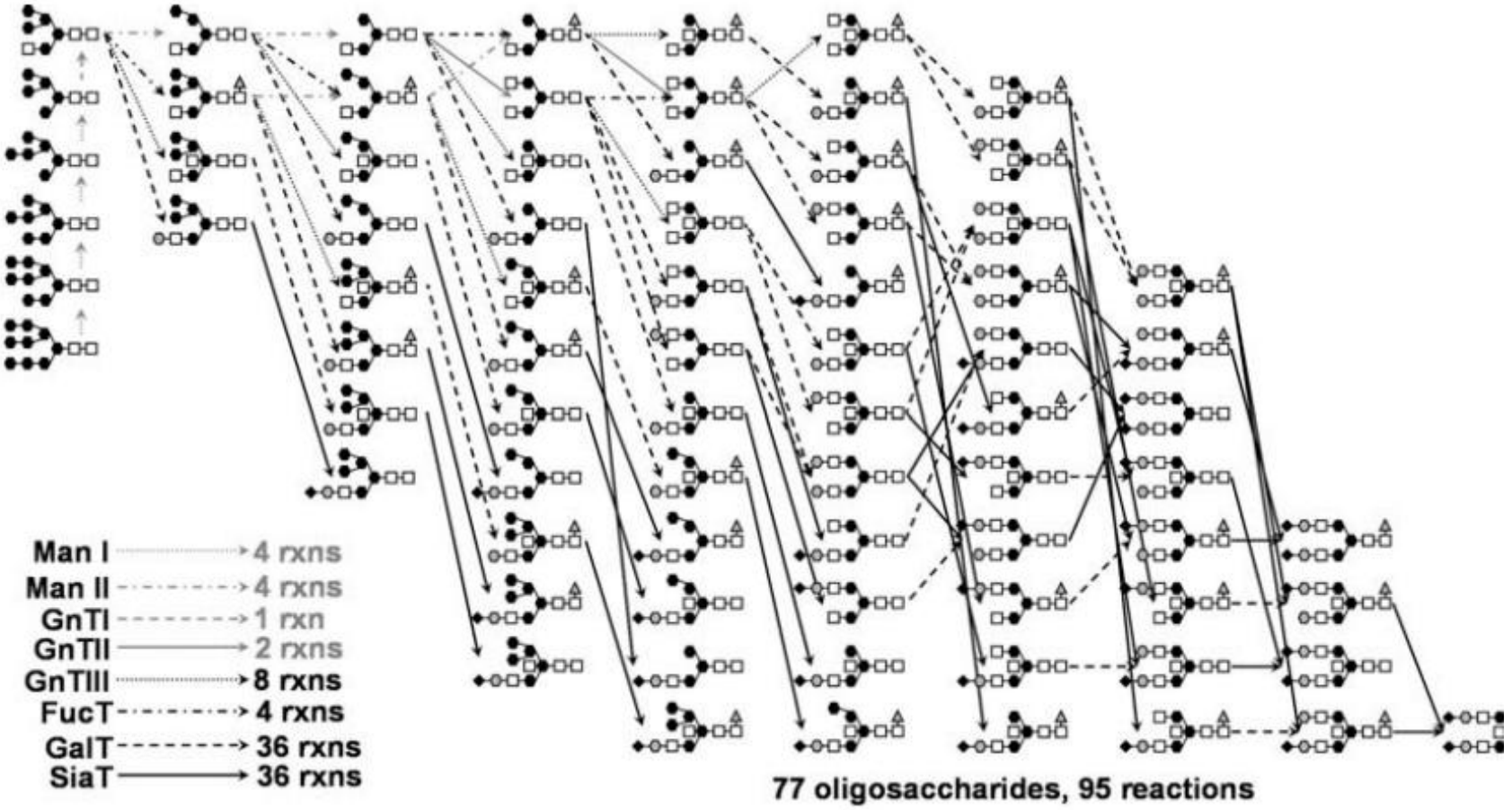
M3. Product Attribute Predictor

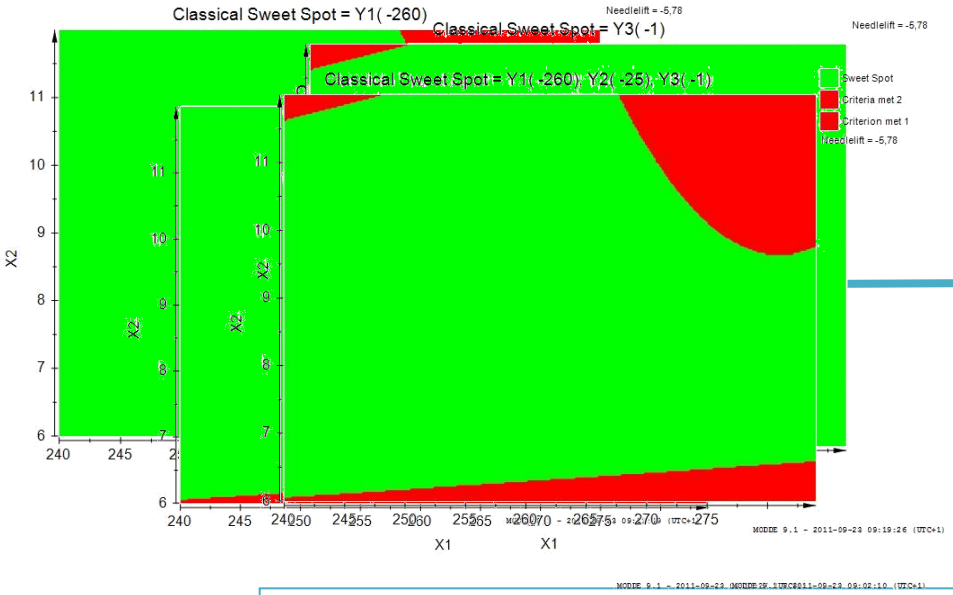


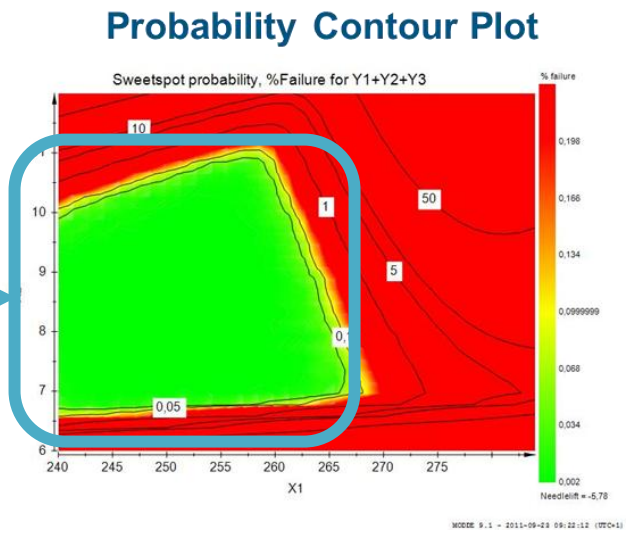
M5. Design Space Exploration

The probability estimation;

Presents low risk region in a Sweet Spot type plot

The probability acceptance region = a good estimation of Design Space





The low risk region is significantly smaller than the corresponding classical sweet spot region