

### **599d Optimized Heat and Power Exchange Network in Ethanol-Water Pressure Swing Distillation**

*Xinqun Huang and Lealon L. Martin*

An ASPEN flow sheet of pressure swing distillation system for ethanol-water azeotrope is developed and presented. A mathematical model is applied to the heat exchange network of cold/hot utility, and cold/hot stream. An optimal integration of heat exchanger, heat, engine, and heat pumps are covered in the model. Simulation results indicate that utility cost can be saved up to negative (by generating power). Utility cost is lower than pinch optimum method after the heat exchange network is applied.