Chemical Engineering

Chuei-Tin Chang (張玨庭 教授)

Professor

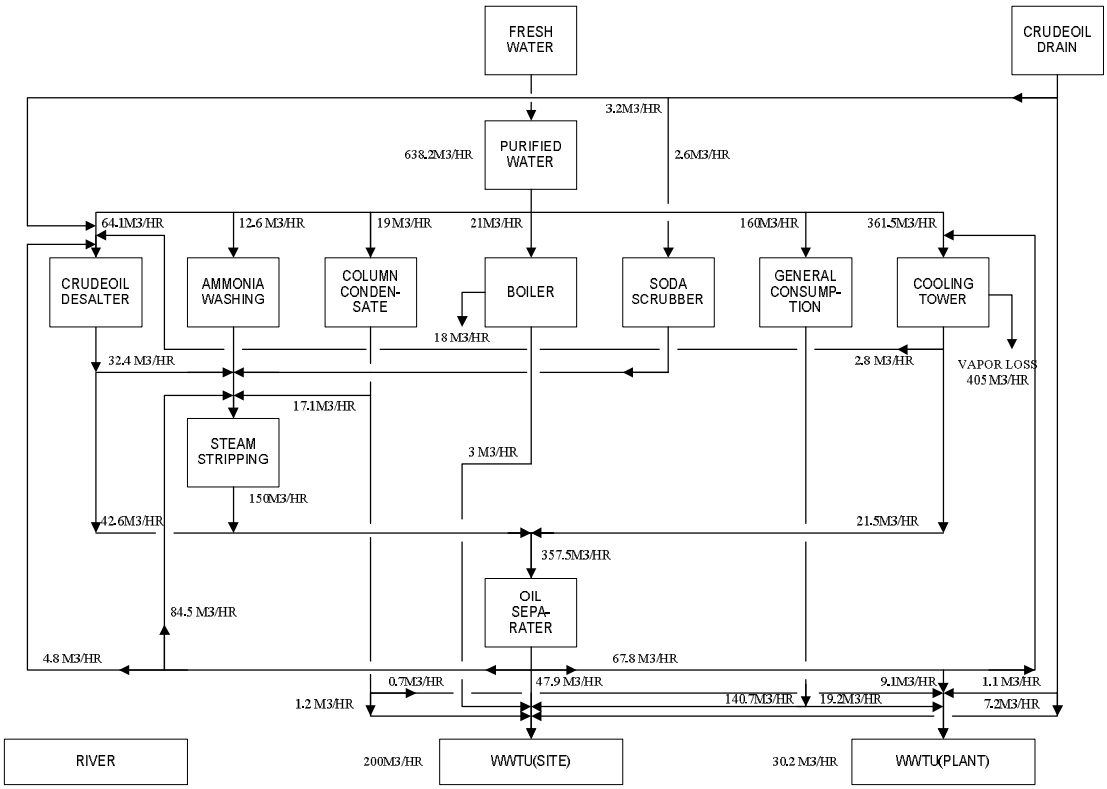
B.S.	National Taiwan University, Taipei City	1976
M.S.	Columbia University, New York City	1979
Ph.D.	Columbia University, New York City	1982

Phone	886-6-275-7575 x 62663
Email	ctchang@mail.ncku.edu.tw
Office	Room 93611 , Chemical Engineering Building

Research Interests:

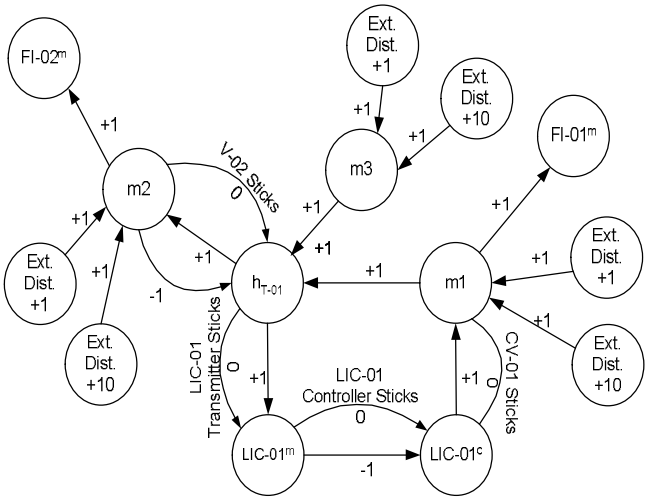
1. **Process Synthesis and Design:**

Our researches are mostly concerned with the design of optimal structures for water networks, heat recovery and utility systems in batch and continuous chemical processes. In recent years, we are also interested in developing design and maintenance strategies for control and instrumentation systems in industrial plants, and process integration methods for waste minimization and cleaner production.



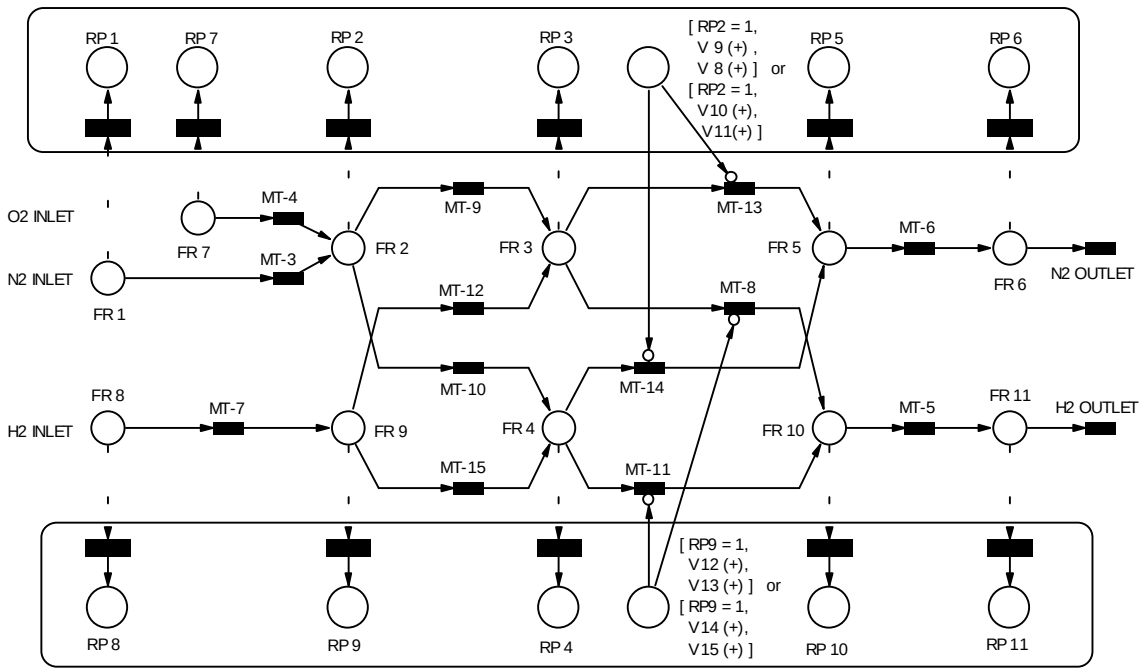
2. **Fault Detection and Diagnosis:**

These issues are critical in enhancing operation safety in chemical plants. Our interests are diversified, e.g. (1) the application of EKF, neural network, fuzzy logic and digraph in fault diagnosis, (2) the synthesis of optimal alarm logics, and (3) the development of multi-variate run rules for statistical process control, etc.



3. **Process Safety Assessment:**

The main thrust of our effort is to automate several widely- adopted safety assessment procedures. In particular, we have successfully integrated FTA/FMEA/HAZOP into a digraph-based generic software. Since the digraph is suitable only for the representation of continuous processes, the focus of our current research is on the development of hazard identification algorithms for batch and sequential operations with an alternative modeling tool - Petri net.



4. **Metabolic Network Modeling:**

Our goals are to develop Petri-net models to describe various cellular functions, i.e., transport, reaction, gene regulation and signal transduction, in the metabolic networks, and to develop a systematic procedure to build the system models by connecting these unit models.