

## REFERENCE

- Barton I., Jones D. H. and Smith G. J. New developments in heat exchanger network targeting, design and analysis. National Meeting by AIChE Mar. 6-10, New Orleans, LA. 1988.
- Bodo Linnhoff. Pinch Technology Has Come of Age. Chemical Engineering Progress (July 1984) : 33-40.
- Bodo Linnhoff and John R. Flower. Synthesis of Heat Exchanger Networks. AIChE Journal (July 1978) : 633-642.
- Bodo Linnhoff and E. Hindmarsh. 1983. The Pinch Design Method for Heat Exchanger Networks. Chemical Engineering Science 38 : 745-763
- Boonliang Simsrisakul. 1989. Computer-Aided Heat Exchanger Network Design. Master's Thesis, Chulalongkorn University.
- Chaiyot Worravitudomsuk. 1989. Energy System Design Using Pinch Technology and Exergy Concept. Master's Thesis, Chulalongkorn University.
- Chen B., Shen J., Sun Q. and Hu S. Development of an expert system for synthesis of heat exchanger networks. Computers and Chemical Engineering (Dec. 1989) : 1221-1227.
- Ciric Amy R., Floudas, and Christodoulos A. Retrofit strategies for existing energy recovery systems. National Meeting by AIChE Mar. 6-10, New Orleans, LA. 1988.
- Ciric A. R. and Floudas C. A. "Retrofit approach for heat exchanger networks." Computers and Chemical Engineering (June 1989) : 703-715.

- Colberg R. D. and Morari M. "Area and capital cost targets for heat exchanger network synthesis with constrained matched and unequal heat transfer coefficients. Computers and Chemical Engineering (Jan. 1990) : 1-22.
- D. Boland and E. Hindmarsh. Heat Exchanger Network Improvements. Chemical Engineering Progress (July 1984) : 47-54.
- Dolan W. B., Cummings P. T. and LeVan M. D. Process optimization via simulated annealing: Application to network design. AIChE Journal (May 1989) : 725-36.
- Dolan W. B., Cumming P. T. and LeVan M. D. HENSSA: a prototype CAD package for heat exchanger network synthesis by simulated annealing. ASME Heat Transfer Division 108 : 153-159.
- Francois and Marechal. SYNEP1: a methodology for energy integration and optimal heat exchanger network synthesis. Computers and Chemical Engineering (Apr.-May 1989) : 603-610.
- Floudas C. A. and Ciric A. R. Strategies for overcoming uncertainties in heat exchanger network synthesis. Computers and Chemical Engineering (Oct. 1989) : 1133-1152.
- George J. Montgomery. Optimize Process Design Via A<sup>\*</sup> Search. Chemical Engineering Progress (June 1991) : 70-76.
- Grossmann I.E. and Sargent R.W.H. 1978. Optimum Design of Heat Exchanger Networks. Computer and Chemical Engineering 2: 1-7.
- Hohmann, E. C. Optimum Networks for Heat Exchanger. Ph.D. Dissertation, University of South California, 1971.
- James M. Douglas. Conceptual Design of Chemical Processes. McGraw-Hill International Edition, 1988.
- M. Wongsri and R.L. Motard, A Pattern Matching Approach to Heat Exchanger Network Synthesis. National Meeting by AIChE April, Houston, Texas. 1991.
- Masso, A.H. and D.F. Rudd. 1969 The Synthesis of System Designs: Heuristic Structuring. AIChE Journal 15: 10.

Naonori Nishida, George Stephanopoulos and A.W. Westerberg. A Review of Process Synthesis. AIChE Journal (May 1981) : 321-350.

Pho T.K. and Lapidus L. 1973. Synthesis of Optimal Heat Exchanger Networks by Tree Searching Algorithms. AIChE Journal 19:1182-1189.



## APPENDIX A.

Table A.1 STREAMINFO data record details.

Field name	Description
NAME	Stream name
Ts	Supply Temperature
Tt	Target Temperature
FCp	Heat capacity flowrate
L	Heat load
STATUS	Stream status, see Table A.2

Table A.2 STREAMINFO STATUS.

STATUS	Description
ACTIVE	Stream still actives, heat load = 0
N/A	Stream does not available in the subproblem
MATCHED	Stream is matched, heat load = 0

Table A.3 NODEINFO data record details.

Field name	Description
ID_MP	Match Pattern being used in current design state
ID_HN	Hot stream number matched
ID_CN	Cold stream number matched
TH_IN	Inlet temperature of hot stream before exchange load
TH_OUT	Outlet temperature of hot stream after exchange load
TC_IN	Inlet temperature of cold stream before exchange load
TC_OUT	Outlet temperature of cold stream after exchange load
FCP_H	Heat capacity flowrate of hot stream
FCP_C	Heat capacity flowrate of cold stream
LoadChange	Heat load change
AREA	Heat transfer area of exchanger unit
STATUS	Node status, see Table A4.

Table A.4 NODENFO STATUS.

STATUS	Description
OPEN	Matching is possible to find
CLOSED	Matching can not be found (node has at least one child node)
GOAL	All streams are matched
END	Matching can not be found (node has not child node)

## BIOGRAPHY

Mr. Prateep Arunwatanamongkol was born on April 17, 1967 in Bangkok, Thailand. He received his Bachelor of Engineering Degree in Chemical Engineering from Chulalongkorn University, Thailand, in 1986. He continued his Master's degree at Chulalongkorn University in 1988. He was granted the degree in October 1992.

