Energy harvesting of Low Density Energy Sources

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Keywords
Heat transfer, Energy conversion (19020)
Solar energy utilization, Unused energy (36020)

Research Topics

- Design of heat exchangers
- Solar energy utilization
- Snow melting, combustion synthesis

Research Seeds

Characteristics of multi-fluid heat exchangers.

Most heat exchanger applications in process, air conditioning, refrigeration, and power industries involve transfer of thermal energy between two fluids through one thermal communication in two-fluid heat exchangers. Three-fluid and four-fluid heat exchangers are widely used in cryogenics and chemical processes. Different reasons might exist for bringing more than two fluids into thermal contact in different applications. Multi-fluid concepts of heat exchangers have possibility of becoming important merits of overall efficiency and space for processes.

The purposes of this research project are to provide comprehensive analysis and develop expression for various figures of merit of this special class of heat exchanger to help industries solve the problem of efficiency of multi-fluid heat exchangers on their unit operations.

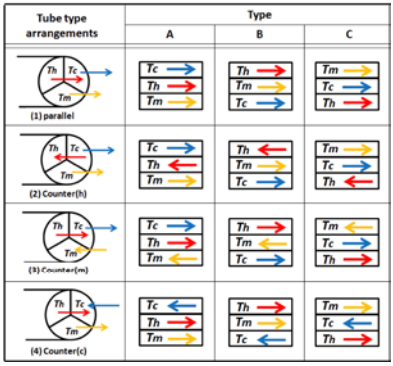

Fig. 1 Tubular type of three-fluid heat exchangers and possible flow arrangement for plate type heat exchangers.

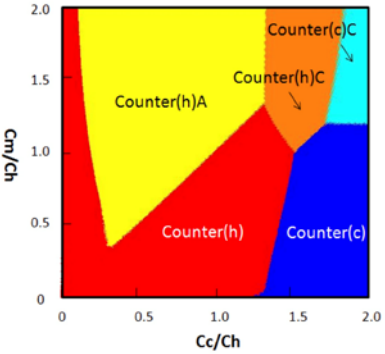

Fig. 2 Effect of various heat capacity rate and effectiveness for several type flow arangemet.

Related Technology

- Renewable energy
- Refrigeration and air-conditioning
- Heat engine