

## ABOUT THE SEMINAR

The objective of the seminar, ES 2000, is to provide an European Forum for the presentation and discussion of recent research on and technical developments in :

“Heat Equipment for the Process and Refrigeration Industries”.

Networks and Research and Technology Development projects are set out.

**This 2-day Seminar will be of interest to a large group of researchers and engineers from research centres and industry.**

If you are interested in the Seminar, please send the reply card to the Seminar secretariat.

## ABOUT COLLABORATIVE RESEARCH

- The purpose of project PHETRA (Promotion of HEat TRAnser enhancement techniques in industrial equipment) is to create and to support an European network connecting industrial companies involved in heat transfer equipment on one hand, and Technical Resources Centres dealing with innovation and technology transfer on the other hand. Through this network, the project encourages the European dimension towards SMEs, in association with exchange of experiences and best practices in each participant's country. After this two-year project (technology transfer networks and services) the results and benefits are exposed.
- Compact Heat Exchangers is a mature technology already used in industrial sectors (air-conditioning, transport, food...) : to promote and to widespread their use in other domains, a forum is organised.
- Development of new heat transfer surfaces requires considerable studies, and CFD methods may reduce cost and time for marketing. It is proposed to launch a forum where experiences will be shared (industrial and academic presentations).

## VISIT

A visit of heat transfer equipment test facilities (ESTHER) will be arranged in Grenoble. The tour will take place on June 29<sup>th</sup>, 2000.

## PRELIMINARY PROGRAMME

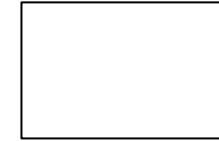
**Thursday June 29<sup>th</sup> : Networking activities**

### • Keynote lectures

Innovation and Exploitation of Research (EC/DG13)  
Promoting Collaborative Research (CEFIC – SUSTECH)

### • Networks

- Presentation of the PHETRA project on European network for the refrigeration and air-conditioning industries (obtained results).
- 1<sup>st</sup> Meeting of the European Network on Advanced Numerical Methods for the Analysis of Compact Heat Exchangers.
- Meeting of the European Network on Compact heat exchangers and enhancement technologies for the process, power and refrigeration industry.



### Friday June 30<sup>th</sup> : Technical session

#### • *Reboilers*

High performances boiling tubes (*Wieland & IKE*)

Design of reboilers using local and overall modelling  
(*GRETh & CS &*

*NTUA*)

Case study : Propylene reboiler (*Technip & Targor*)

Case study : LNG applications (*Technip & Shell*)

#### • *Compact Heat Exchangers*

Plate fin heat exchangers (*Nordon*)

Condensation in compact heat exchangers  
(*Alfa-Laval Vicarb*)

#### • *Enhancement Technologies for Shell and Tube Heat Exchangers*

The helical baffle heat exchangers (*ABB-Lummus*)

Heat and mass transfer intensification using inserts  
(*Cal-Gavin*)

#### • *Multifunctional units*

Reforming unit (*IET*)

Heat exchanger reactor (*ECN*)

### Closing session and open discussion

## SUPPORTING ORGANISATIONS

CEA : Commissariat à l'Énergie Atomique

EC/DG12 : Science, research and development

EC/DG13 : Innovation and Exploitation of Research,  
Information, Society, Telecommunications,  
Market, Technologies.

**CEA/Grenoble  
GRETh  
ES 2000 Secretariat**

**17, rue des martyrs  
F- 38054 GRENOBLE Cedex 9**

## REPLY CARD (ES 2000 Seminar)

Please complete and return this card at your earliest convenience, but no later than May 31<sup>th</sup>, 2000

Surname : \_\_\_\_\_

First Name : \_\_\_\_\_

Title : \_\_\_\_\_

Affiliation : \_\_\_\_\_

Mailing Address : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone : \_\_\_\_\_

Fax : \_\_\_\_\_

E-mail : \_\_\_\_\_

I plan to attend the Seminar

I intend to visit the heat transfer equipment test facilities

(ESTHER) on June 29<sup>th</sup>, 2000

I suggest to send the circular also to the following person(s) :

Name : \_\_\_\_\_

Address : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name : \_\_\_\_\_

Address : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### PUBLICATIONS

The proceedings of the Seminar will be distributed to registered participants and include :

- Technical Handbook (which contains 48 technical sheets) ETHERACE "Enhancement Techniques in Heat Exchangers for Refrigeration and Air Conditioning Equipment", a CD-Rom, addresses of European companies (manufacturers, engineering, end users) concerned by the PHETRA project.
- Technical papers on Reboilers, Compact Heat Exchangers, Enhancement Technologies.
- 2 review papers on :
  - ✂ Advanced Numerical Methods for the Analysis of Compact Heat Exchangers
  - ✂ Compact Heat Exchangers and Enhancement Technologies for the Process, Power and Refrigeration Industry.

### REGISTRATION FEE

The registration fee is 300 (+VAT : 61,8) per person, which covers Seminar participation, proceedings, lunch, coffee-breaks and gala-dinner.

GRETh members benefit from a reduced fee : 200 (+VAT : 41,2).

### ORGANISATION COMMITTEE

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Information on this seminar and activities of GRETh will be available in Internet at : <http://www.greth.org>

### MAILING ADDRESS

GRETh - CEA Grenoble

ES 2000 Secretariat

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## FIRST ANNOUNCEMENT



## EUROPEAN SEMINAR ON HEAT EQUIPMENT FOR THE PROCESS AND REFRIGERATION INDUSTRIES

- Networks and RTD projects -



Organized by GRETh, with the support of the European Commission (DG12 & DG13)

FRANCE, Grenoble, 29/30 JUNE, 2000