Séminaire du CETHIL

Jeudi 08/06/2017 à 13h30

Salle 230, bât. Carnot

Some current research about component design improvements and system optimization of vapor compression systems for A/C and refrigeration sectors

Auteur

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Abstract

The recent Kigali amendment to the Montreal protocol represents a new perspective to limit the environmental impact related to the use of refrigerants worldwide. As a matter of fact, systems based on vapor compression of refrigerants are the most used and represent the largest part of the appliance for the A/C and refrigeration sectors in terms of installed power. Also, they are electrical appliances allowing the use of electrical energy produced from renewable sources.

In order to reduce the direct environmental impact new refrigerants are emerging with different characteristics and some specific technical issues. In this context, the academic and industrial research is studying the different scenarios related to the introduction of new refrigerants, as change in performance, possible technical issues and new innovative lay-outs or component design.

In this seminar, some current research related to the evaluation of the energetic performance and environmental impact for systems working with new refrigerants will be presented. Also, some specific topics dealing with the optimal design of systems, the refrigerant charge reduction and new design options will be discussed.

Short CV

Alfonso William Mauro is associate Professor in Applied Physics at Federico II University of Naples where he teaches Refrigeration classes. He got his PhD in 'Energy conversion for Mechanical systems' in 2006 with a thesis related to the experimental determination of pressure gradients and local heat transfer coefficients during flow boiling of new fluorinated refrigerants. After that his research topics were mainly focused on the experimental determination of flow boiling performance of CO2 and new low GWP refrigerants, and the development of predictive models; the experimental and modeling study of refrigerators and heat pumps working with natural refrigerants. Member of the IIR (B1 commission) and of the AICARR, he serves different Journals related to the Heat Transfer and the Energy Conversion as reviewer.

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