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Prof. Joaquim Rigola



Centre Tecnològic de Transferència de Calor
UNIVERSITAT POLITÈCNICA DE CATALUNYA

Heat and Mass Transfer Technological Center (CTTC)
Universitat Politècnica de Catalunya – Barcelona TECH (UPC)
Mechanical and Aeronautical Engineering School, Terrassa, (BCN), Spain

quim@cttc.upc.edu / +34 650 55 15 55 / www.cttc.upc.edu

 quim.rigola

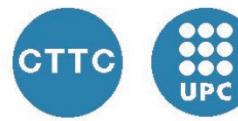
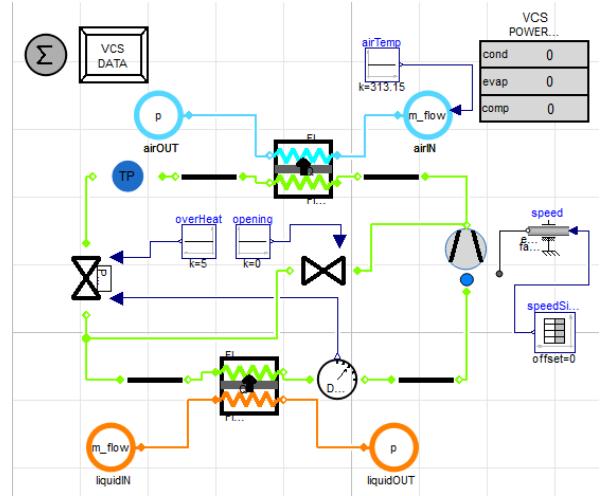
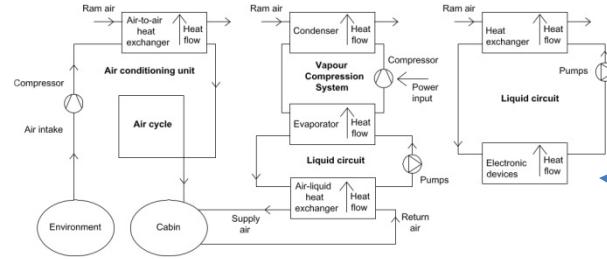
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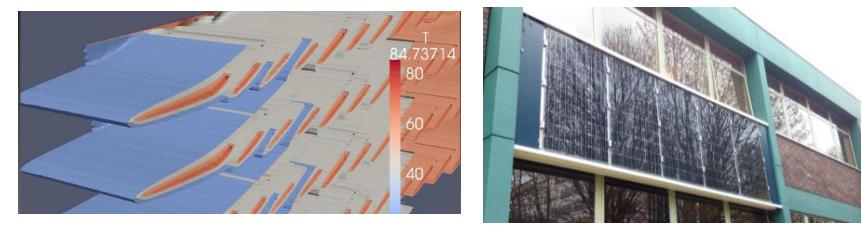


S2R-OC-IP1-02-2020: Technical solutions for the next generation of TCMS Functional distribution framework, through an integrated modular platform, including the integration of third party's HVAC function.

S2R-OC-CCA-01-2020: Noise and Vibration Call Noise reduction



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Computational Fluid Dynamics and Heat Transfer Object oriented tools thermal systems & equipments

HVAC AIRPLANES

HYBRID PV PANELS

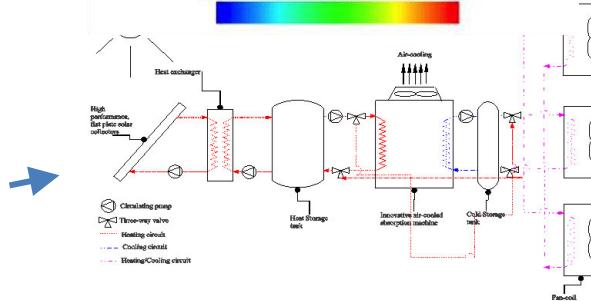
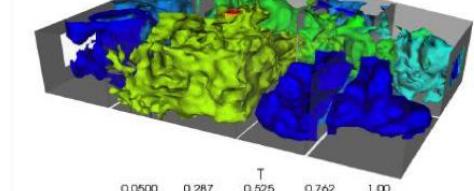
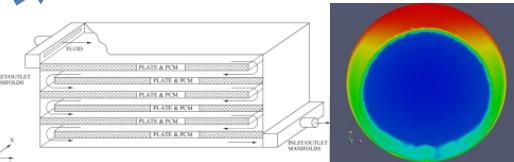
PCM HEAT STORAGE

COMPRESSORS

ACTIVE CONTROL BUILDINGS

REFRIGERATION SYSTEMS

ABSORPTION MACHINES





Smart and Adaptive Refrigerated Containers (SARC)

- **Rail connection fresh food products**

- Sustainable
- Fast, reliable and efficient
- 70% of CO₂ emissions reductions



- **Examples**

- 2018 COLDTRAIN Canadian Pacific Railway
- 2018 TK Washington – Oregon
- 2019 MSC COOLRAIL Valencia - Rotterdam,



- **Actual alternatives**

- CO₂ cryogenic tanks
- LNG fueled refrigerated vehicles





Smart and Adaptive Refrigerated Containers (SARC)

- **Vapour compression refrigerating system (VCS)**

- New fluid refrigerants
- Evaporative cooling

- **Insulation walls**

- Vacuum panels and Phase Change Materials
- Air flow control distribution

- **Renewable energy**

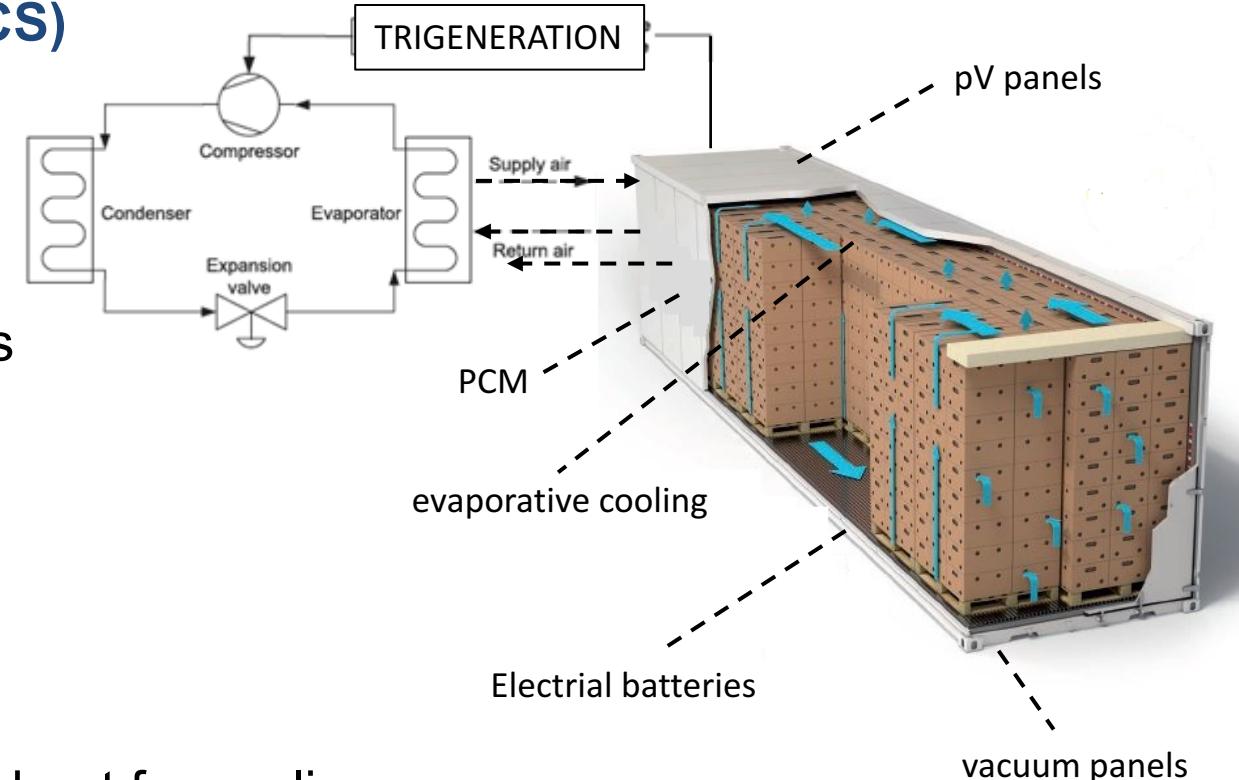
- pV panels at the top of the container

- **Waste heat recover**

- Trigeneration system to convert motor waste heat for cooling

- **Storage capabilities**

- Electrical batteries
- Fuel cell + gas storage





Smart and Adaptive Refrigerated Containers (SARC)



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- Containers Constructors
- HVAC Manufacturers
- Vacuum panels & PCM producers
- pV panels producers
- Batteries producers
- Test chambers
- Stakeholders

