



Mission Innovation Heating and Cooling - Sorption Heat Pump Systems

Kick-Off meeting - Tuesday 30th June 2020

Outline

- Description of CNR ICCOM
- Ongoing research activities on sorption systems
- ICCOM contribution to the Sorption Heat Pump Systems project



INTERNATIONAL CONFERENCE ON
POLYGENERATION

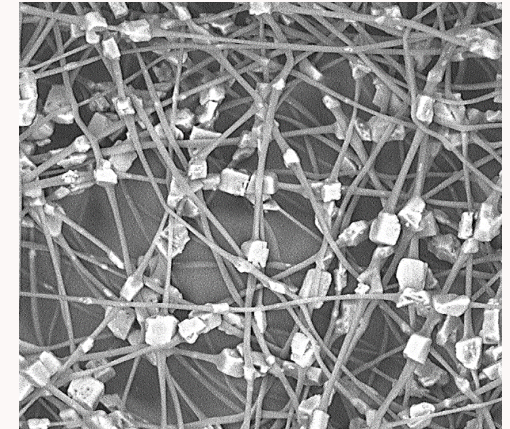
- CNR-ICCOM belongs to The Council of National Research (CNR), which is the largest Italian public research organisation
- The institute is located in Pisa, Tuscany
- The acronym ICCOM stands for Institute of Chemistry of Organometallic Compounds.
- the institute activity is devoted to basic research in the fields of materials chemistry, renewable energy, green-chemistry ...
- Around 35 among researchers, technicians and admin staff



Ongoing research activities on thermal/sorption systems 1/2

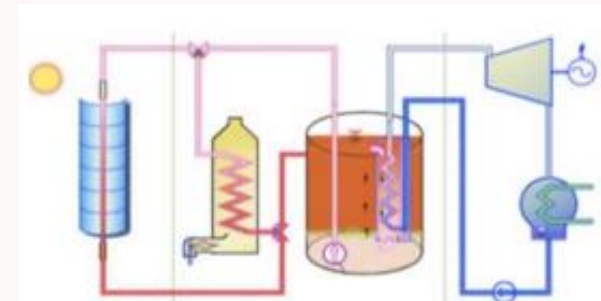
National project (2019-2021) on the development of adsorbent fibers produced by electrospinning technique for adsorption closed-cycle systems (heat storage – chillers)

In collaboration with Lucio Bonaccorsi UNIRC



National project (2019-2020) on the development of ionic liquids with high thermal capacity for application in CSP heat storage systems

In collaboration with ENEA, ENI



Ongoing research activities on thermal/sorption systems 2/2

National project (2020-2023) on the development of biochar for application in water purification plants

In collaboration with ENI

EC project (2019-2021) on the development of heat and mass transfer model in coated adsorbers (FEM Analysis)


In collaboration with ITAE and UNIME

CNR-RS bilateral agreement (2020-2021) on the development of ammonia-salt systems for sorption heat pumps

In collaboration with UW



ICCOM contribution to the Sorption Heat Pump Systems project



Determination of the structure of the salts by using standard techniques (X-ray Analysis, electron microscopy, thermal analysis) and more sophisticated (IR spectroscopy, solid state NMR).

Study of the stability of salts subjected to a number of aging cycles, in order to identify any degradation process

Characterization of the ammonia adsorption process by special a special NMR technique based on a Fast Field-Cycling NMR relaxometer

