Research infrastructure of CSP in China

Zhifeng Wang, Professor

Key laboratory of solar thermal energy and photovoltaic system, Chinese Academy of Sciences

Institute of Electrical Engineering, Chinese Academy of Sciences

Solar tower plant

70KW solar tower plant built by Hehai University + Weizmann institute in Nanjing city, 2005

Solar tower plant

"Solar thermal power technology and system demonstration"
Key project of National Hi-tech Research and Development Program (863 plan)
during the 11th five year plan, China

Research Infrastructure of Tower

Heliostat

20m^2, Dezhou

22m^2, Dezhou

100m^2, Dezhou

100m^2, 55 facets, Beijing

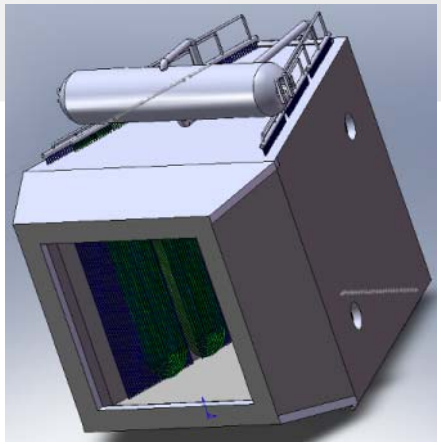
107m^2, 28 facets, Beijing

125m^2, 24 facets, Beijing

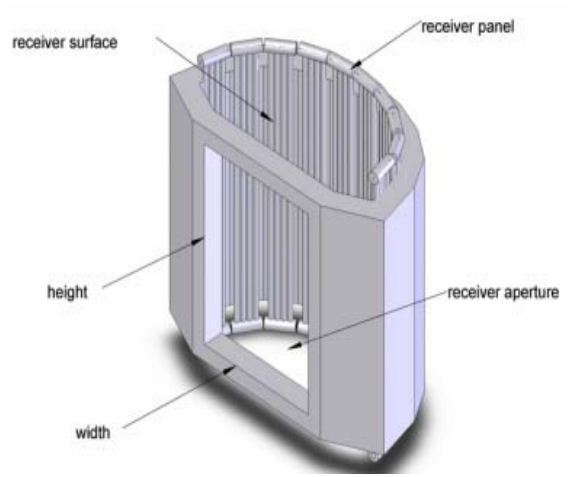
Research Infrastructure of Tower

Receiver

Water steam receiver,
supplied by KIER



Superheated steam receiver model, Xi'an Jiaotong University



100kWt molten salt receiver, IEECAS

Research Infrastructure of Tower

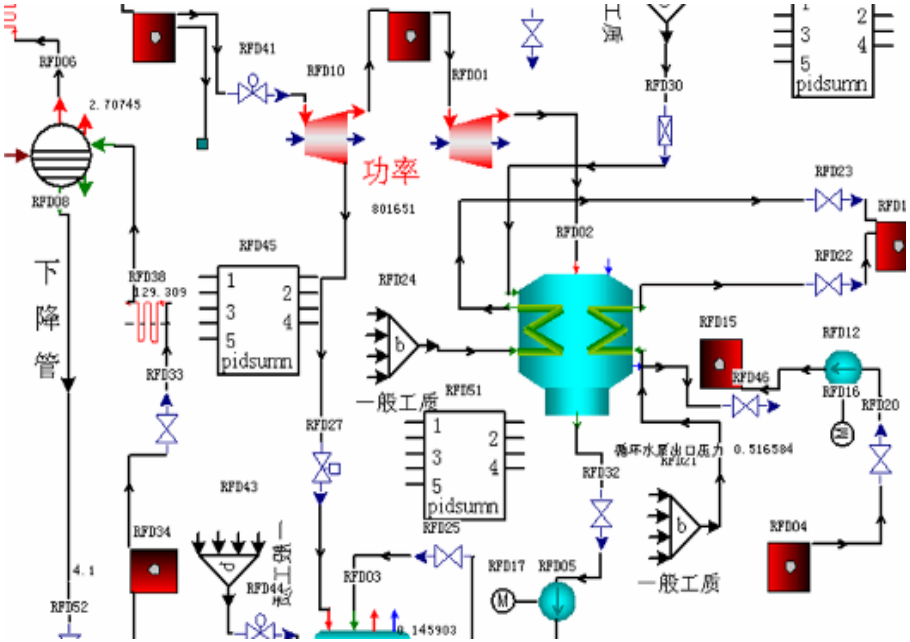
Storage and transfer medium

molten salt experimental facility, Sun Yat-sen University

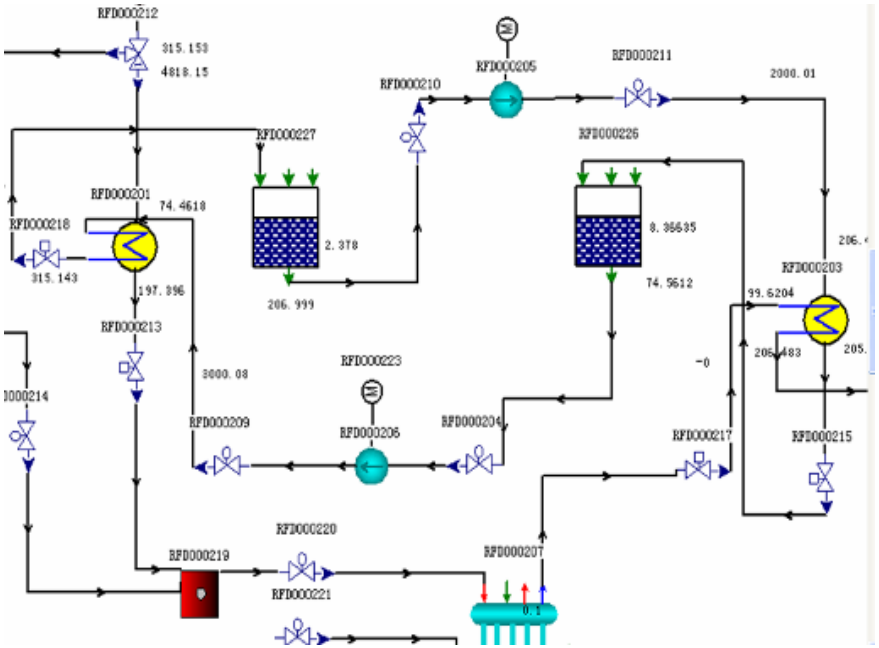
Molten salt test facility, Beijing University of Technology

1m^{3}concrete storage module, Wuhan University of Technology

Simulation Soft



Thermodynamic cycle simulation with all working conditions, IEECAS



Thermal storage system simulation with all working conditions, IEECAS

Research Infrastructure of Trough

Parabolic Trough System Demonstration

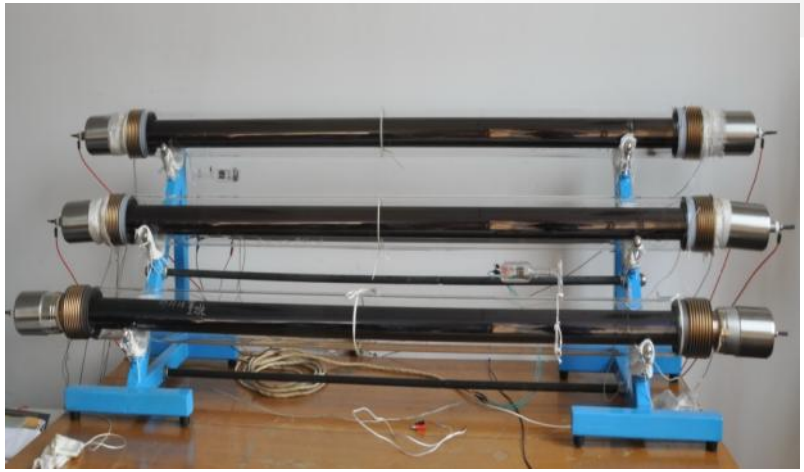
IEECAS & Himin Solar, Beijing, 2010

Sunda & Beijing Zhonghang Airport General Equipment, 2010

Sunda & Huadian Engineering, Langfang, 2009

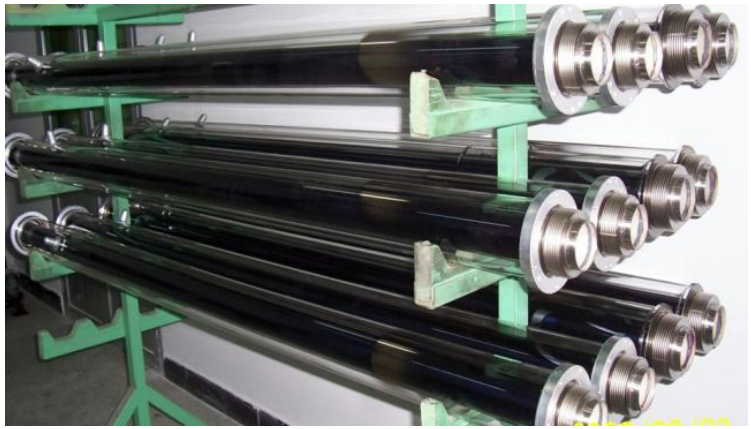
Research Infrastructure of Trough

Evacuated Receiver Cube



Evacuated receiver tube, Tsinghua Uni.2010

4m tube, Himin Solar, 2010



Evacuated receiver tube, Sunda, 2010

Research Infrastructure of Dish/Stirling

Dish Collector

Single dish, diameter 5m, Dezhou

Multi dish, diameter 5m, Xi’an

Multi-dish concentrator, Ha’erbin

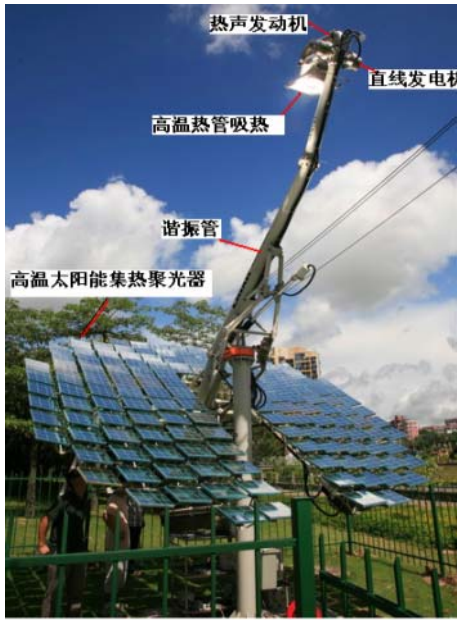
Multi dish, diameter 10m, Dezhou

Research Infrastructure of Dish/Stirling

Dish/Stirling demonstration system

1KWe dish Stirling system by IEECAS and Himin Solar, 2005

5kW Dish/Thermal Sonic Stirling, technical institute of physics and chemistry, 2009



1kW Dish Solar-powered Thermoacoustic Electrical Generator, Technical Institute of Physics and Chemistry, CAS, 2009

Research Infrastructure of Dish/Stirling

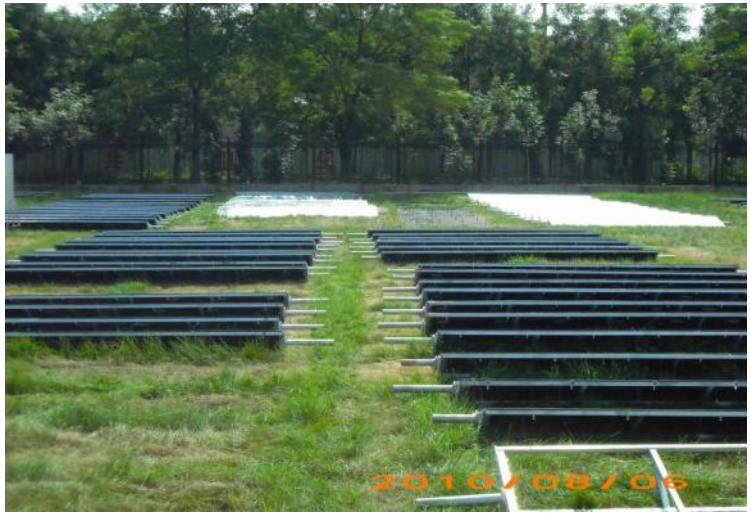
Dish/Stirling demonstration system

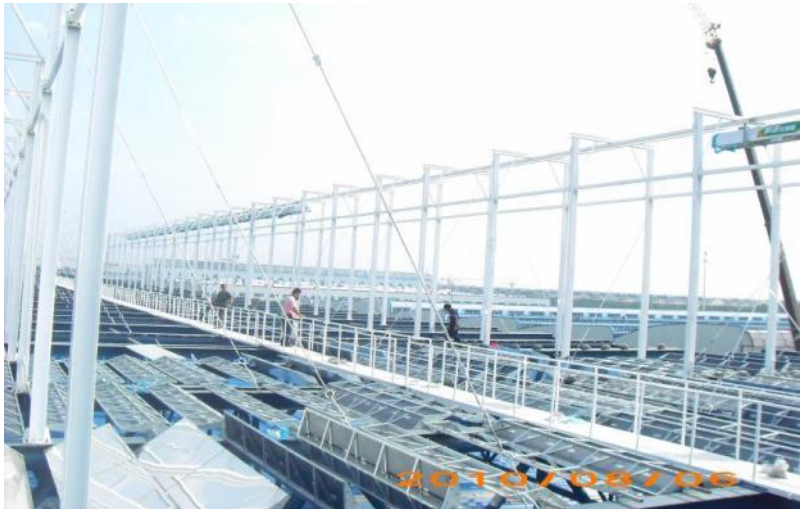
CENICOM prototype, 88 dishes, 150kWp, Tianjin, 2009

E-cube tech, Sanya, 2009

Research Infrastructure of Fresnel

Himin Solar, Fresnel prototype, Dezhou, 2009





2.5MW Fresnel system under construction, Himin Solar, Dezhou, 2010

Research Infrastructure of Solar Furnace

20kWt Solar furnace, IEECAS, Beijing

360kWt Solar furnace, IEECAS, Yinchuan

Our works now and tomorrow

1. Complete 1MW solar tower plant in this year
2. Establish some standards of CSP technology
3. Establish 6MW solar tower plant in the next 5 years
4. Establish 1MW parabolic trough demonstration plant in the next 5 years
5. Other research infrastructure

Thanks!

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