BEARS | SinBerBEST

Multi Level Optimal Control

Berkeley: Claire Tomlin, Shankar Sastry, Alexandra Bayen, Kameshwar Poolla
NTU: Xie Lihua, Cai Wenjian, Soh Yeng Chai, Su Rong
NUS: Wang Qingguo, Lee Tong Heng

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MISSION

Develop innovative energy-efficient air-conditioning technologies, information-driven control and optimization technologies, and resource management technologies for tropical buildings to save 50% of energy compared with the current state-of-the-art technology.

WORK PACKAGES

WP 2.1 = Development of Active Chilled Beam Systems in Tropic Buildings

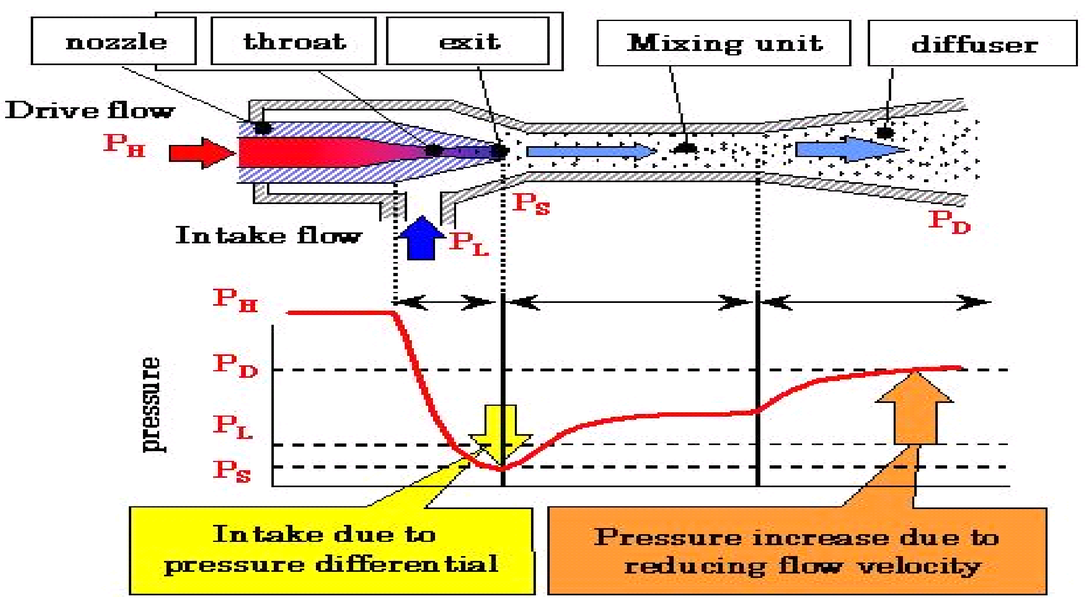
WP 2.2 = Development of Renewable Energy Cooling System for Tropic Buildings

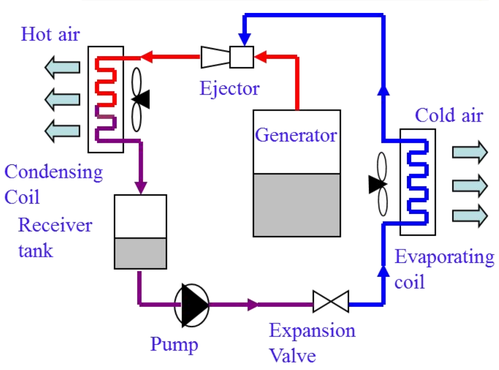
WP 2.3 = Development of Total Dynamic Model for Control and Optimization

WP 2.4 = Dynamic Control and Optimization

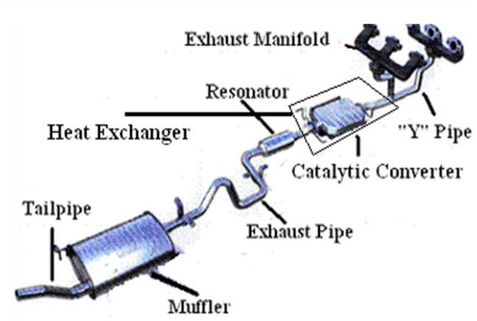
WP 2.5 = Resource Management

WASTE/RENEWABLE ENERGY ASSISTED COOLING



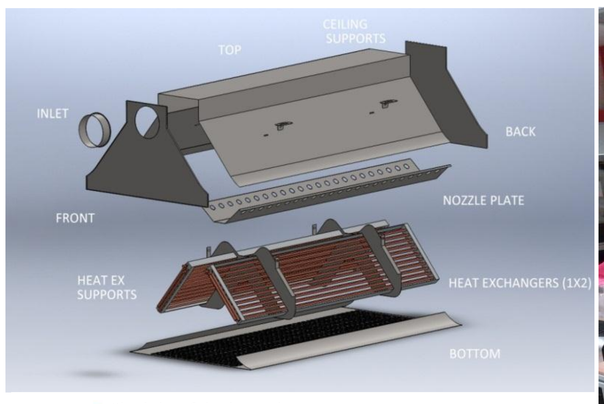


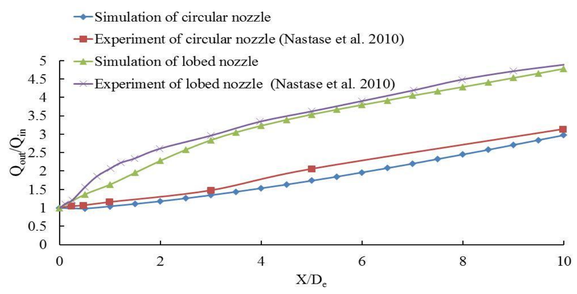
Steam ejector heat pump



Heat exchanger location

PROTYPE DEVELOPMENT FOR TROPIC ACTIVE CHILLED BEAM





COOPERATIVE PRESSURE CONTROL

- The air pressure at each inlet of a room is influenced by others, so the individual PID controller is not efficient
- The problem can be considered as a network flow control problem
- Cooperative control techniques are developed to achieve faster response for each local cooling space and better energy efficiency

EMOCS for Building HVAC Systems

HVAC System Optimization Structure