

Inverse computational fluid dynamics applied in the present and future built air environment

A. Inverse Design Problem

B. Inverse Source Problem



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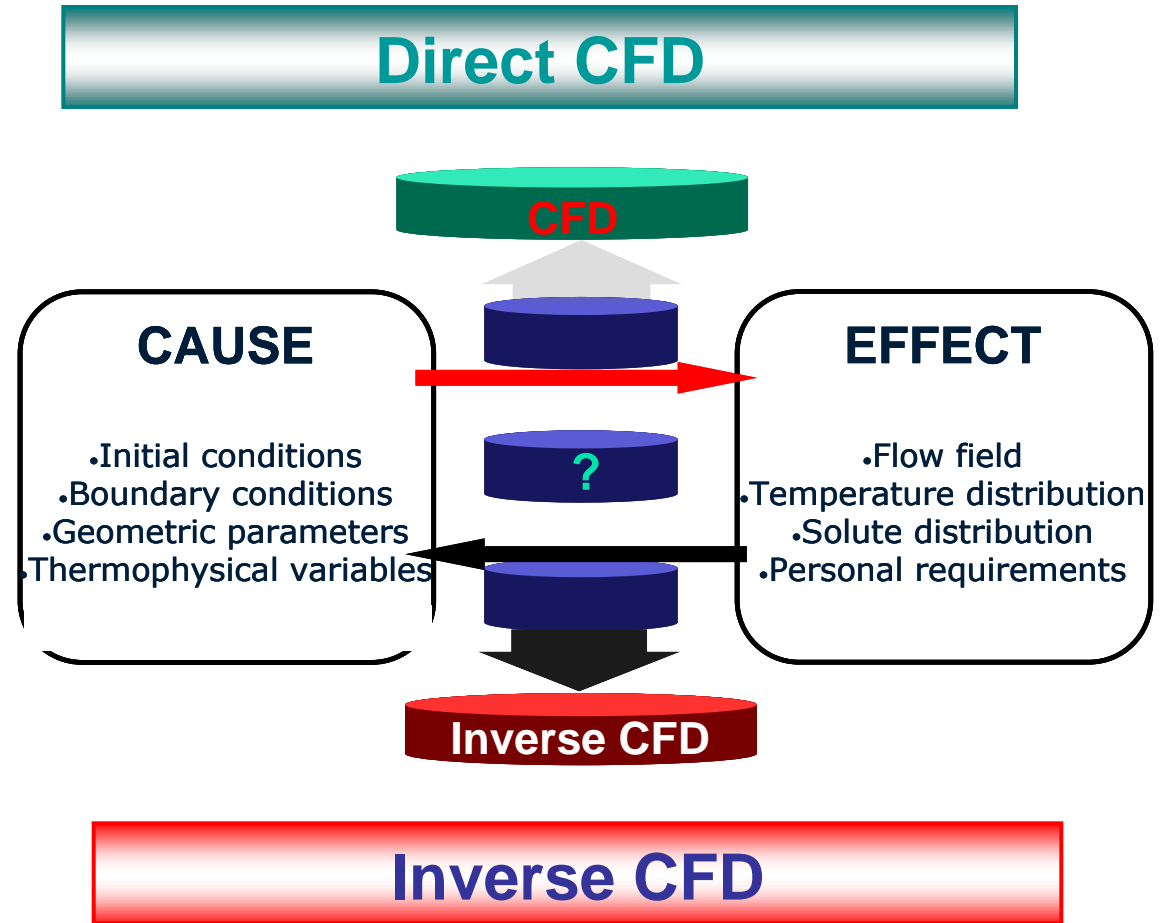
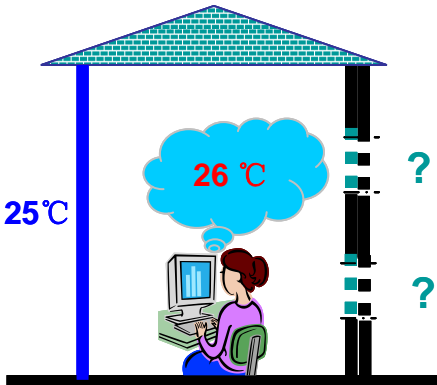
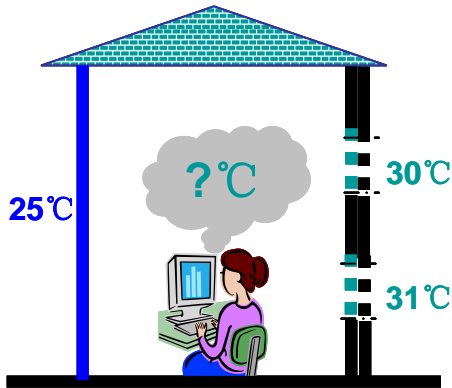
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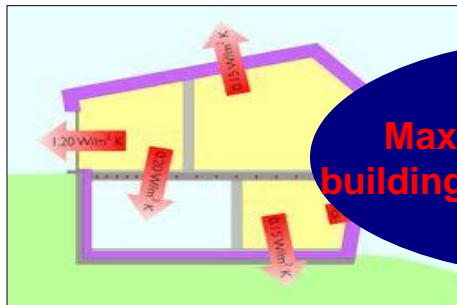
Indoor air design

Desired thermal comfort of individual personnel



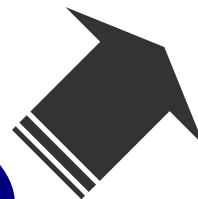
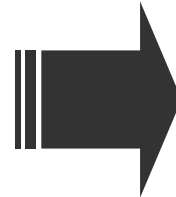
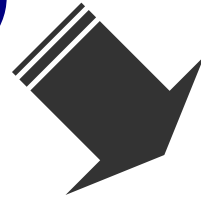
Wind farm design

Maximizing air flow rates around wind-turbines

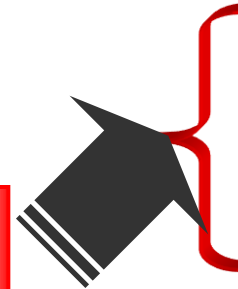


Building heat transfer design

Maximizing/Minimizing building element heat transfer



Inverse CFD solvers



Service units operation

Air distribution routes



Turbine installing locations

Positions of wind shelterbelts



Window/wall ratio

Window location

Window/wall thickness



Sudden fire



Chimney check



Terrorist attack

**Air temperature
pollutant concentration
sensors**

**Inverse CFD
solvers**

- Source locations
- Source strengths
- Releasing history

**Containing Measurement
errors or noises**



You could change the world. As a first step, you should change the building environment.

