

## *CHPB-2-2018: Demonstration of self-tuned indoor environments and integration in smart building operation*

### Expected Results / Impact:

- Smart solutions for **customized** indoor climate control
- Office buildings with improved occupant **satisfaction/productivity** and lower **energy use**

### Objective:

- Demonstrate self-tuned environments in open-plan spaces based on new concepts for:
  - » Information acquisition & processing (**active learning & optimal control**)
  - » Zone and local thermal comfort delivery
  - » Energy-comfort trade offs



### Approach:

- Integrate distributed sensing/occupant feedback, learning and control algorithms in HVAC systems operation and BMS

### Schedule:

- Toolboxes with algorithms for active learning, agent-based control, ADP, and model-based RL: **Q1-Q3**
- Prototype and field demonstration in open-plan spaces (zone and local control): **Q1-Q3**
- Datasets with occupant satisfaction, productivity and energy use; Filed/simulation studies, cost-benefit analysis: **Q2-Q4**



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