

Introduction

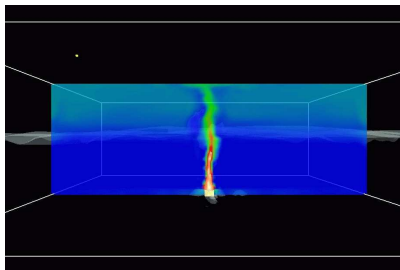
Fire models are used to simulate different types of fires and give different simulation results. These results shall be used as input parameters for a sensor model. This sensor model simulates the response of a fire sensor to a given fire or non fire situation.

In general the input parameters of the sensor model can not be taken directly from the results of the fire model. The results have to be converted to the input parameters of the sensor model. The goal of the project is to give the opportunity to simulate the process of automatic fire detection from the beginning of the fire up to the response of the fire sensor.

Fire Simulation



Real fire



Simulated fire

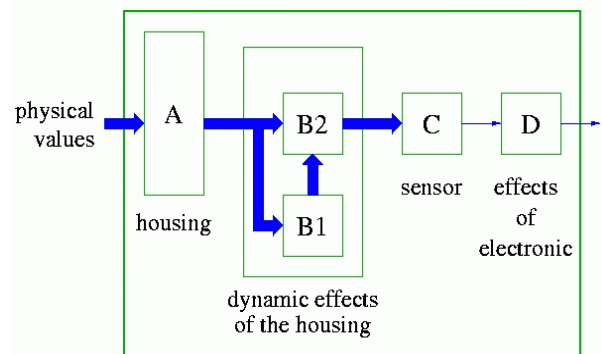
Interface between simulator models

- Calculation of the particle number concentration from smoke mass density
- Calculation of the influence of coagulation on the particle number concentration, the particle diameter, and the deviation of the size distribution
- Simulation of smoke sensor signals
- Simulation of different fire and non-fire situations

Sensor simulation

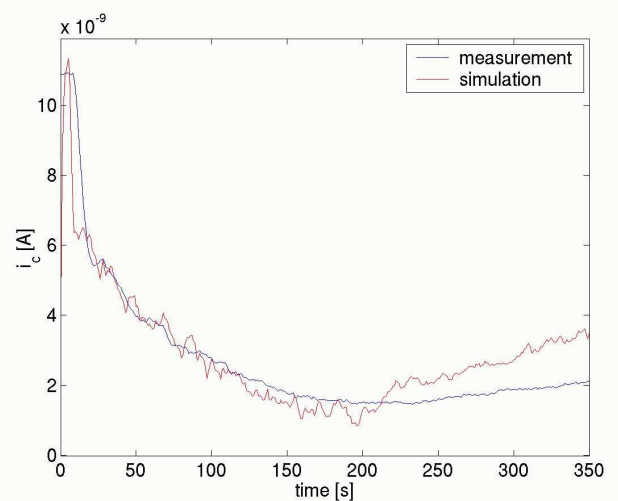


Real sensor



Simulation model for a fire sensor

Comparison between measurement and simulation results



Simulation results