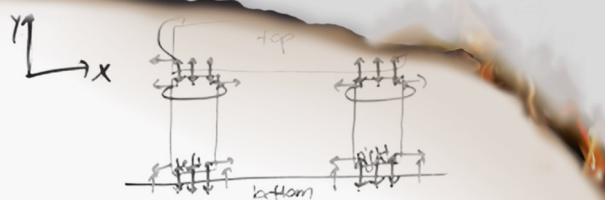


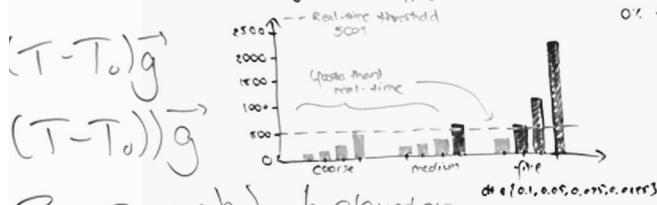
$T_0$  ambient



$$T_0 \vec{g} \quad , \quad \beta := \frac{1}{T_0} \text{ (ideal gas)}$$

$$-\rho_0 \beta (T - T_0) \vec{g} \quad \text{thermal expansion coefficient}$$

Juro's time stepping wallclock time [s]

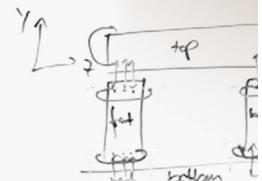
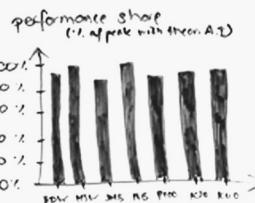


$$P = P + \rho_0 g h, \text{ height}$$

$$\vec{g}) = \frac{1}{\rho_0} (-\nabla P + \Delta \rho \vec{g})$$

$$= -\frac{1}{\rho_0} \nabla P - \beta (T - T_0) \vec{g}$$

$$-\frac{1}{\rho_0} \nabla P + \beta \nabla^2 \vec{u} - \beta (T - T_0) \vec{g}$$



$\rightarrow b$  Duplicates : if  $b(\text{neighbor}) \in \text{ob}$   
 $\rightarrow o$  Duplicates : if  $o(\text{neighbor}) \in \text{ob}$   
 $\Rightarrow s$  Duplicates : if  $s(\text{neighbor}) \in \text{ob}$

Alternative:  
 1. list & idx : if  $\text{idx} \in \text{obstacles}$  +  
 check last  
 $\Rightarrow$  in BC test if  $\text{idx}(\text{neighbor}) \in$   
 $\sin \cup \pi^x$

## Real-Time Simulation and Prognosis of Smoke Propagation in Compartments Using a GPU

Anne Küsters

IAS Series

Band / Volume 39

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Forschungszentrum Jülich GmbH  
Institute for Advanced Simulation (IAS)  
Civil Safety Research (IAS-7)

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