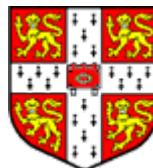

Contribution to:

Forward Looking Panel Discussion

Stewart Cant

Cambridge University Engineering Department,
United Kingdom

12th SIAM Conference on Numerical Combustion
Monterey, April 2008



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Direct Numerical Simulation

- **Physical**

- ever-higher Reynolds number
- better chemistry: more fuels, better constants, less stiffness
- even better boundary conditions
- geometry, two-phase, radiation...

- **Computational**

- no more Moore's law
- much more parallelism – even on the desktop

- **Algorithmic**

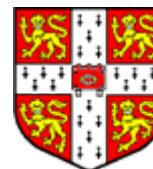
- adaptive schemes in time and space
- implicit solvers



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Combustion Modelling

- LES is king
 - but RANS has its place
 - better appreciation of LES strengths and weaknesses
- Old combustion problems
 - flame-turbulence interaction remains the key issue
- New combustion problems
 - partially-premixed systems, HCCI, fuel blending, biofuels
 - better treatment of chemistry
 - better modelling for two-phase, radiation, acoustics...



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