数学与系统科学研究院

计算数学所学术报告

(定期学术报告)

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报告题目：　Large eddy simulation of turbulent confined coannular jet with chemical reactions

邀请人：　袁礼研究员

报告时间：　2008 年 11 月 6 日(周四)

　　　　　下午 4:00—5:00

报告地点：　科技综合楼三层 311

　　　　　计算数学所报告厅

Abstract：

There are two main challenges in LES of turbulent

reacting flows: modeling the filtered chemical source terms and finding suitable chemical kinetic mechanism. For non−premixed combustion, mixture−fraction−based approachs modeling filtered chemical source terms, appear to offer the most effective description of the chemistry. Mixture fraction is taken as "tracking scalar" in flamelet model, but it cannot account for chemical variations in directions perpendicular to mixture−fraction's gradient, and does not contain any intrinsic information about chemical reaction. In progress−variable approach an additional non−conserved "tracking scalar" is characterized as a reaction progress variable including intrinsic information about chemical reaction.

Turbulent confined coannular jet is a simplified geometric model of flame tubes of aeroengine. LES with progress−variable approach is used to simulate the mixing and reactions of fuel and oxidant in it.

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