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Structures in Fire; Chapter 10. Equivalence Analysis of Thermal and Mechanical Effects on Steel Members under Fire Conditions; Chapter 11. Behavior of Steel-Composite Beams Subjected to Fire Chapter 12. Experimental Behaviour of Steel Beam to Concrete-Filled Steel Tubular (CFST) Column Connections After Exposure to Fire Chapter 13. Calculations on The Fire Resistance of Steel Reinforced Concrete (SRC) Columns; Chapter 14. 3-D Finite Element Simulation of The Response of Steel Frames Subjected to Fire; Chapter 15. Use of Sub-Structuring in Modelling of Composite Building Response to Compartment Fires; Chapter 16. Finite Element Analysis on Temperature Field of Long-Span Steel Structure under Fire Conditions; Chapter 17. High-Temperature Experiments on Joint Component Behaviour Chapter 18. Fire Resistance of Concrete-Filled Double Skin Steel Tubular Columns Chapter 19. Finite Element Analysis of Concrete Filled Steel Columns in Fire; Chapter 20. The Design of Fire-Resistant Protection Systems for Structural Steel Members; Chapter 21. An Experimental Study of Fire Behaviour of a Panel Made of Cold-Formed Thin-Walled Perforated Steel Channels in Compression; Chapter 22. Experimental Research on The Mechanical Properties of Steel After High Temperature; Chapter 23. The Effect of Connections on Fire Resistance of Axially Restrained Beams Chapter 24. Fire Analysis Accounting for Cooling Effects Part 2: Fatigue and Fracture; Chapter 25. Two Studies on the Actual Behaviour and Limit States of Steel Structures; Chapter 26. The Ultimate Behaviour of Cracked Square Hollow Section T-Joints; Chapter 27. Current Developments of Support Structures for Wind Turbines in Offshore Environment; Chapter 28. Considerations of NDT Quality in Fracture-Critical Inspections for Steel Bridges; Chapter 29. Assessment of Fatigue Reliability of Steel Crane Structures in Service Based on Damage Cumulative Model Chapter 30. Stress Concentration Factor (SCF) Test Results of Large-Scale Tubular K-Joints

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#### Sommario/riassunto

This two volume proceedings contains 11 invited keynote papers, 33 invited papers, and 225 contributed papers presented at the Fourth International Conference on Advances in Steel Structures (ICASS '05) held on 13-15 June 2005 in Shanghai, China. ICASS provides a forum for discussion and dissemination by researchers and designers of recent advances in the analysis, behaviour, design and construction of steel structures. Contributions to the papers came from 22 countries around the world and cover a wide spectrum of topics including: Constructional Steel, Hybrid Structures, Non

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