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Titolo	Arbitrary Lagrangian-Eulerian and fluid-structure interaction : numerical simulation / / edited by Mhamed Souli, David J. Benson
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Altri autori (Persone)	SouliM BensonD. J <1955-> (David J.)
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Soggetti	Fluid-structure interaction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Arbitrary Lagrangian-Eulerian and Fluid-Structure Interaction; Title Page; Copyright Page; Table of Contents; Introduction; Chapter 1. Introduction to Arbitrary Lagrangian-Eulerian in Finite Element Methods; 1.1. Introduction; 1.2. Governing equations; 1.3. Operator splitting; 1.4. The Lagrangian step; 1.4.1. Governing equations; 1.4.2. The central difference method; 1.4.3. Element formulation; 1.4.4. Hourglass modes; 1.4.5. Stress rates; 1.4.6. Shock viscosity; 1.4.6.1. von Neumann-Richtmyer; 1.4.6.2. Standard quadratic and linear formulation; 1.4.6.3. Effect on time step size 1.4.7. Mixture theories1.4.7.1. Mean strain rate mixture theory; 1.4.7.2. Mean stress mixture theory; 1.5. Mesh relaxation; 1.6. The Eulerian step; 1.6.1. Transport in one dimension; 1.6.2. Multidimensional transport by operator Splitting; 1.6.3. Multidimensional transport on unstructured meshes; 1.6.4. Momentum

transport; 1.6.4.1. Momentum transport using a dual mesh in one dimension; 1.6.4.2. Element-centered transport in one dimension; 1.6.5. Interface reconstruction; 1.6.5.1. Lagrangian methods; 1.6.5.2. Level set methods; 1.6.5.3. Volume of fluid methods; 1.7. Future research directions
1.8. BibliographyChapter 2. Fluid-Structure Interaction: Application to Dynamic Problems; 2.1. Introduction; 2.2. General ALE description of Navier-Stokes equations; 2.3. Fluid-structure interaction; 2.3.1. Contact algorithms for fluid-structure interaction problems; 2.3.2. Euler-Lagrange coupling; 2.3.3. Damping in the coupling; 2.4. Numerical applications; 2.4.1. Piston problem; 2.4.2. Two-dimensional slamming modeling; 2.4.2.1. Numerical approach of a two-dimensional slamming problem; 2.4.2.2. Numerical approach for rigid structure; 2.4.3. Airbag deployment; 2.4.4. Sloshing tank problem
2.4.4.1. Analytical treatment of the sloshing problem2.4.4.2. Sloshing in a rigid tank; 2.4.4.3. Frequency analysis for sloshing; 2.4.4.4. Application to a cylindrical flexible tank subjected to seismic loading; 2.5. Conclusion; 2.6. Acknowledgments; 2.7. Bibliography; Chapter 3. Implicit Partitioned Coupling in Fluid-Structure Interaction; 3.1. Introduction; 3.2. Computational fluid mechanics; 3.2.1. Governing equations; 3.2.1.1. Incompressible flows; 3.2.1.2. Inviscid flows; 3.2.2. Finite volume discretization; 3.2.2.1. Solution algorithms; 3.3. Computational structural mechanics
3.3.1. Governing equations3.3.1.1. Linear elasticity; 3.3.1.2. Plane stress problems; 3.3.1.3. Hyperelasticity; 3.3.2. Finite element methods; 3.4. Fluid-structure interaction algorithms; 3.4.1. ALE formulation; 3.4.2. Mesh dynamics; 3.4.2.1. Algebraic approaches; 3.4.2.2. Elliptic approaches; 3.4.3. Coupling methods; 3.4.3.1. Implicit partitioned coupling; 3.5. Results and applications; 3.5.1. Verification results; 3.5.2. Validation results; 3.5.3. Flow induced by solid deformation; 3.5.4. Interaction of flow and solid deformation; 3.6. Bibliography
Chapter 4. Avoiding Instabilities Caused by Added Mass Effects in Fluid-Structure Interaction Problems

Sommario/riassunto

This book provides the fundamental basics for solving fluid structure interaction problems, and describes different algorithms and numerical methods used to solve problems where fluid and structure can be weakly or strongly coupled. These approaches are illustrated with examples arising from industrial or academic applications. Each of these approaches has its own performance and limitations. Given the book's comprehensive coverage, engineers, graduate students and researchers involved in the simulation of practical fluid structure interaction problems will find this book extremely useful.

2. Record Nr. UNINA9910956785203321

Titolo	War and the City : The Urban Context of Conflict and Mass Destruction / Alexander Querengässer, Andrew Demshuk, Linda Parker, Jon Beall, Stefan Laffin, Jamie Horncastle, Simon Davis, Frank Jacob, Hiram Kümper, Jeffrey M Shaw, Sarah K. Danielsson, Sabine Müller, Tim Keogh
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Collana	War (Hi) Stories ; 6
Disciplina	355.471732
Soggetti	Stadt Krieg Urbanistik Militärgeschichte Urban history military history war memorialization architecture occupation Middle East Europe
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Matter -- Copyright page -- Introduction / Tim Keogh -- Learning the “Grammar” of Urban Operations: The United States Army and Urban Combat in World War II / Jonathan A. Beall -- Saxon Cities in the Great Northern War (1700–1717) / Alexander Querengässer -- Panic in London? Attitudes of Civilians to Air Attacks in 1917/18 and 1944/45 / Linda Parker -- The Death of a City: The Yugoslav Peoples Army Siege of Vukovar, 1991, Refugee Crisis, and Its Aftermath / James Horncastle -- “Government Forces Dare Not Penetrate”: Urban Arab

Palestine, No-Go Areas, and the Conflicted Course of British Counter-Insurgency during the Great Rebellion, 1936–1939 / Simon Davis -- Occupied Naples and the Politics of Food in World War II / Stefan Laffin -- Rebuilding after the Reich: Sacred Sites in Frankfurt, Leipzig, and Wrocaw, 1945–1949 / Andrew Demshuk -- Back Matter -- Contributors -- Index.

Sommario/riassunto

A crucial collection of new insights into a topic too often ignored in military history: the close interrelationship between cities and warfare throughout modern history. Scenes of Aleppo’s war-torn streets may be shocking to the world’s majority urban population, but such destruction would be familiar to urban dwellers as early as the third millennium BCE. While war is often narrated as a clash of empires, nation-states, and ‘civilizations’, cities have been the strategic targets of military campaigns, to be conquered, destroyed, or occupied. Cities have likewise been shaped by war, whether transformed for the purposes of military production, reconstructed after bombardment, or renewed as sites for remembering the costs of war. This conference volume draws on the latest research in military and urban history to understand the critical intersection between war and cities.