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System Dynamics; 2.10 Galactic Simulations and The N-Body Problem; Chapter 3 Discrete and Combined Simulation - Example of PAsION Implementation; 3.1 Are Discrete Models Valid?; 3.1.1 The Discrete Time and Discrete Events; 3.1.2 Semidiscrete Events; 3.2 PAsION - PSM++ Simulation System; 3.2.1 PAsION - PSM++ Summary; 3.2.2 Getting Started; 3.2.3 Processes and Events; 3.2.4 Permanently Active Processes; 3.2.5 State and Conditional Events 3.2.6 PAsION Code Generators 3.3 Queuing Model Generator (QMG); 3.3.1 QMG Blocks; 3.3.2 Example of a QMG Model; 3.3.3 The SVOP Procedure; 3.3.4 PAsION Animators; 3.3.5 Another QMG Example: Manufacturing System Model; 3.4 Complex System Simulator of PAsION; 3.4.1 What is Complexity?; 3.4.2 CSS Module of PAsION System; 3.4.3 Model Coupling; 3.4.4 Example; Chapter 4 Differential Inclusions in Modeling and Simulation; 4.1 Differential Inclusions; 4.2 Possible Applications; 4.3 Differential Inclusion Solver (DIS); 4.4 Application in Uncertainty Treatment 4.5 Uncertain Future and Differential Inclusions 4.6 Conclusions and Future Research; Chapter 5 Fluid Dynamics - Simulating Oscillating Gas Flow; 5.1 Computational Fluid Dynamics; 5.2 Numerical Problems; 5.3 The Simulation Tool; 5.4 Examples; 5.5 Oscillating Gas Flow; 5.6 Two-Dimensional Fluid-Dynamics Models are Invalid; 5.7 Conclusions; Chapter 6 Simulating Phenomena of General Relativity; 6.1 Some Basic Concepts; 6.2 The Simulation Tool and Model Time; 6.3 Simulation Experiments; 6.3.1 Relativistic Orbit; 6.3.2 Light Signals; 6.3.3 3D Light Cones; 6.3.4 Time Distortion 6.3.5 Approaching a Black Hole

Sommario/riassunto

Simulation is the art of using tools - physical or conceptual models, or computer hardware and software, to attempt to create the illusion of reality. The discipline has in recent years expanded to include the modelling of systems that rely on human factors and therefore possess a large proportion of uncertainty, such as social, economic or commercial systems. These new applications make the discipline of modelling and simulation a field of dynamic growth and new research. Stanislaw Raczynski outlines the considerable and promising research that is being conducted to counter the problems of un
