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Nota di contenuto	Contents; Preface; Self-Organized Construction in Sparse Random Arrays of Conway's Game of Life; Synthesis of Complex Life Objects from Gliders; A Two-Dimensional Cellular Automaton Crystal with Irrational Density; Still Life Theory; Replicators and Larger-than-Life Examples; Growth Phenomena in Cellular Automata; Constructive Molecular Dynamics Lattice Gases: Three-Dimensional Molecular Self-Assembly; Simulating Digital Logic with the Reversible Aggregation Model of Crystal Growth; Universal Cellular Automata Based on the Collisions of Soft Spheres Emerging Markets and Persistent Inequality in a Nonlinear Voting ModelCellular Automata for Imaging, Art, and Video; Continuous-Valued Cellular Automata in Two Dimensions; Phase Transition via Cellular Automata; Index
Sommario/riassunto	'New Constructions in Cellular Automata' not only discusses cellular automata (CA) as accouterment for simulation, but also the actual building of devices within cellular automata. CA are widely used tools for simulation in physics, ecology, mathematics and other fields. But they are also digital 'toy universes' worthy of study in their own right, with their own laws of physics and behavior. This book examines constructive methods - the practice of actually building devices in a given CA that store and process in formation, replicate and propagate

themselves, and interact with other devices in complex ways. By building such machines, we learn what the CA's dynamics are capable of, and build an intuition about how to 'engineer' the machine we want.