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| Nota di contenuto | Introduction to the volume by Alan Kirman -- Part I Finitary methods of statistical equilibrium -- 1. Enrico Scalas, University of Sussex, "Continuum and thermodynamic limits for a wealth -- distribution stylised model" -- 2. Doyn Farmer Oxford University, Mauro Galegatti, Corrado di Guilumi and Shimon Landini, "Applications of statistical physics for rebuilding macroeconomics" -- 3. Raymond Hawkins, University of California Berkley, "Information, Inattention, and the Discount Function" -- 4. Juergen Mimkes, University of Paderborn -- 5. Hiroshi Yoshikawa, University of Tokyo/Rissho University -- 6. Yuji Aruka, Chuo University, Japan, "Aoki's Japanese textbook of stochastic economic dynamics" -- 7. Didier Sornette, ETH zurich -- 8. rank Schweitzer, ETH Zurich -- Part II Data driven analysis by econophysic -- 9. Hideaki Aoyama, Kyoto University, "Hodge decomposition of |

Economic Networks” -- 10. Yoshi Fujiwara, University of Hyogo, “Non -- self Averaging and Economic Network” -- 11. Yuichi Ikeda, Kyoto University, “Simple Interacting Agent Models with Reconstructed Economic Data” -- 12. Hiroshi Iyetomi, Niigata University, “Collective Phenomena in Economic Systems” -- 13. Hiroyasu Inoue, University of Hyogo, “Reactions of economy toward various disasters calculated by firm -- level simulation” -- 14. Rosario Mantegna, University of Parelmo, Eugene Stanley, Boston University -- 15. Wataru Souma, Nihon University, „Income distribution, inequality, and entropy” -- 16. Thomas Lux, University of Kiel.

Sommario/riassunto

This book systematically provides a prospective integrated approach for complexity social science in its view of statistical physics and mathematics, with an impressive collection of the knowledge and expertise of leading researchers from all over the world. The book mainly covers both finitary methods of statistical equilibrium and data-driven analysis by econophysics. The late Professor Masanao Aoki of UCLA, who passed away at the end of July 2018, in his later years dedicated himself to the reconstruction of macroeconomics mainly in terms of statistical physics. Professor Aoki, who was already an IEEE fellow, was also named an Econometric Society Fellow in 1979. Until the early 1990s, however, his contributions were focused on the new developments of a novel algorithm for the time series model and their applications to economic data. Those contributions were undoubtedly equivalent to the Nobel Prize-winning work of Granger's "co-integration method". After the publications of his *New Approaches to Macroeconomic Modeling and Modeling Aggregate Behavior and Fluctuations in Economics*, both published by Cambridge University Press, in 1996 and 2002, respectively, his contributions rapidly became known and spread throughout the field. In short, these new works challenged econophysicists to develop evolutionary stochastic dynamics, multiple equilibria, and externalities as field effects and revolutionized the stochastic views of interacting agents. In particular, the publication of *Reconstructing Macroeconomics*, also by Cambridge University Press (2007), in cooperation with Hiroshi Yoshikawa, further sharpened the process of embodying “a perspective from statistical physics and combinatorial stochastic processes” in economic modeling. Interestingly, almost concurrently with Prof. Aoki's newest development, similar approaches were appearing. Thus, those who were working in the same context around the world at that time came together, exchanging their results during the past decade. In memory of Prof. Aoki, this book has been planned by authors who followed him to present the most advanced outcomes of his heritage.
