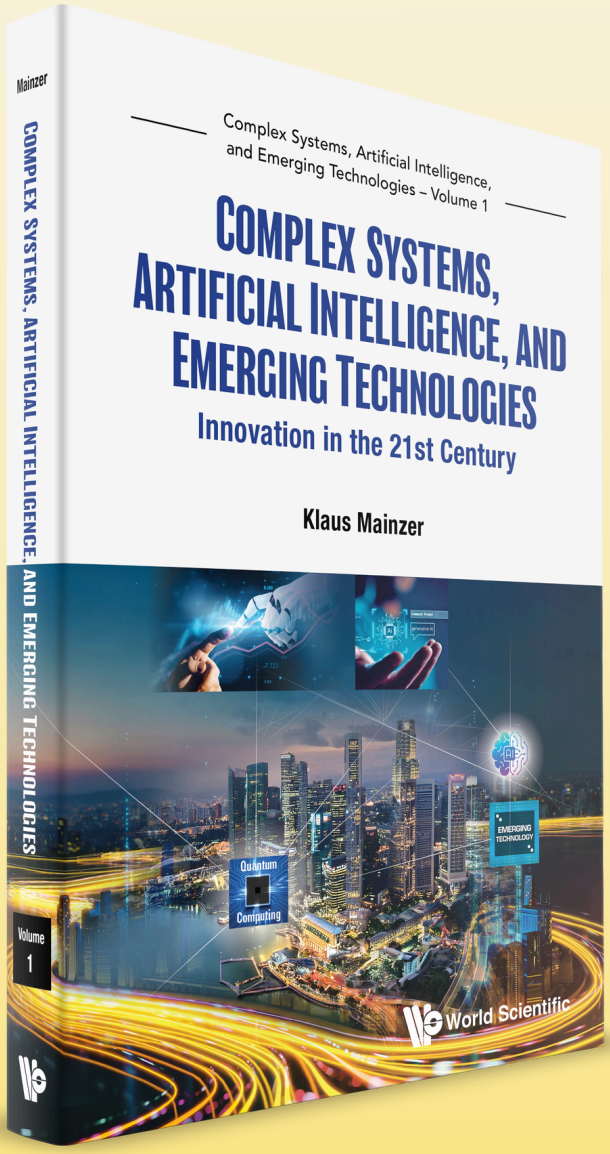
Complex Systems, Artificial Intelligence, and Emerging Technologies: Volume 1



Klaus Mainzer

Technical University of Munich, Germany

COMPLEX SYSTEMS, ARTIFICIAL INTELLIGENCE, AND EMERGING TECHNOLOGIES
INNOVATION IN THE 21ST CENTURY

This book is the opening volume of an interdisciplinary series exploring the dynamic intersection of complex systems, artificial intelligence (AI), and emerging technologies. As AI-driven solutions become essential for handling vast and ever-growing data sets, innovation in computing technologies is crucial. At the same time, sustainability and resource limitations must be addressed.

Bringing together classic digitalization, neuromorphic computing, quantum technologies, and the latest breakthroughs in generative AI (e.g., ChatGPT, Deepseek), this book examines the evolving innovation portfolio that shapes the future of AI and computing. It highlights the balance between digital and analog technologies, advocating for a hybrid IT and AI approach geared toward efficiency and sustainability.

Rooted in decades of research on complex systems and AI, this volume sets the stage for a broader discussion on strategic innovation, offering insights into the evolving technological landscape and its impact on society.

Contents:

- Introduction
- Dynamics of Complex Systems
- Innovation, Evolution, Disruption
- Artificial Intelligence and Sustainability
- Competition of Innovation Systems
- Future between Sustainability and Planetary Exploration
- Personal Index
- Subject Index

180pp | Pub Date: Nov 2025
Hardcover 978-981-98-1313-1 | **US$78 / £70**
eBook for Individual 978-981-98-1315-5 | **US$62 / £60**
Get your copy at **https://doi.org/10.1142/14312**