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Nota di contenuto	Preface; CONTENTS; 1. Overview of ARO program on network science for human decision making B.J. West; 1. Introduction; 2. Background; 2.1. What we know about networks; 2.2. What we do not know about the linking of physical and human networks; 3. What We Have Been Doing; 3.1. Complexity theory and modeling without scales; 3.2. Information propagation in complex adaptive networks; 4. Preliminary Conclusions; References; 2. Viewing the extended mind hypothesis (Clark & Chambers) in terms of complex systems dynamics G. Werner; 1. Background; 2. On the Extended Mind Hypothesis 3. Brain and World as ONE Complex Dynamical System4. Praxis Ahead of Theory; 5. Conclusion; References; 3. Uncertainty in psychophysics: Deriving a network of psychophysical equations K.H. Norwich; 1. Introduction; 2. Philosophical Underpinnings; 3. Mathematical Representation of the Psychophysical Law (Weber-Fechner and

Stevens); 4. A Network of Equations Issuing from the Entropic Form of the Psychophysical Law; 4.1. The differential threshold ( DH from Fechner's conjecture) and Weber's fraction; 4.2. The hyperbolic law governing the magnitude of n ( DH from Miller's magical number) 4.3. Simple reaction time ( DH is the minimum quantity of information needed to react)5. Searching for Support within Thermodynamics and Statistical Physics; 5.1. Emergence of the Weber-Fechner law from thermodynamics; 6. Discussion; 6.1. Review; 6.2. Quantum Sufficiat; Acknowledgements; References; 4. The collective brain E. Tagliazucchi and D.R. Chialvo; 1. Introduction; 2. Emergent Complex Dynamics is always Critical; 3. The Collective Large-scale Brain Dynamics; 4. Neuronal Avalanching in Small Scale is Critical; 5. Psychophysics and Behavior; 6. An Evolutionary Perspective 7. Noise or Critical Fluctuations? Equilibrium vs Non-equilibrium8. Outlook; Acknowledgements; References; 5. Acquiring long-range memory through adaptive avalanches S. Boettcher; 1. Introduction; 2. Motivation from Self-organized Criticality; 3. Spin Glass Ground States with Extremal Optimization; 4. EO Dynamics; 5. Annealed Optimization Model; 6. Evolution Equations for Local Search Heuristics; 6.1. Extremal optimization algorithm; 6.2. Update probabilities for extremal optimization; 6.3. Update probabilities for metropolis algorithms; 6.4. Evolution equations for a simple barrier model 6.5. Jamming model for -EOReferences; 6. Random walk of complex networks: From infinitely slow to instantaneous transition to equilibrium N.W. Hollingshad, P. Grigolini and P. Allegrini; 1. Introduction; 2. Preliminary Remarks on the Size of a Complex Network; 3. On the Master Matrix A; 4. Transition to Equilibrium in Hierarchical Networks; 5. Return to the Origin in a Scale-free Network; 5.1. Ad hoc scale-free network; 5.2. Hierarchical network; 6. Conclusions; Acknowledgements; References; 7. Coherence and complexity M. Bologna, E. Geneston, P. Grigolini, M. Turalska and M. Lukovic 1. Introduction

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## Sommario/riassunto

This invaluable book captures the proceedings of a workshop that brought together a group of distinguished scientists from a variety of disciplines to discuss how networking influences decision making. The individual lectures interconnect psychological testing, the modeling of neuron networks and brain dynamics to the transport of information within and between complex networks. Of particular importance was the introduction of a new principle that governs how complex networks talk to one another - the Principle of Complexity Management (PCM). PCM establishes that the transfer of information fr

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