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Collana	The IMA Volumes in Mathematics and its Applications, , 0940-6573 ; ; 158
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Soggetti	Biomathematics Mathematical physics Dynamics Ergodic theory Mathematical and Computational Biology Mathematical Applications in the Physical Sciences Dynamical Systems and Ergodic Theory Congresses.
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Anti-Cancer Drug Resistance: A Pre-existing or Emerging Phenomenon? -- Modeling Fluid Flow Induced by Bacterial Carpets -- Modeling Auto regulation in the Kidney -- Modeling Anti-coagulation Therapy -- Mathematical Modeling of Evolutionary Diversification -- Intermittent Preventative Treatment (IPT) and the Spread of Drug Resistance to Malaria -- Stochastic Modeling of the Phototransduction Cascade for Melanopsin -- Clustering in Inhibitory Neural Networks with Nearest Neighbor Coupling -- Modeling the Dynamics of REM Sleep.
Sommario/riassunto	This volume highlights problems from a range of biological and medical applications that can be interpreted as questions about system behavior or control. Topics include drug resistance in cancer and malaria, biological fluid dynamics, auto-regulation in the kidney, anti-coagulation therapy, evolutionary diversification and photo-transduction. Mathematical techniques used to describe and investigate these biological and medical problems include ordinary,

partial and stochastic differentiation equations, hybrid discrete-continuous approaches, as well as 2 and 3D numerical simulation. .
