



Complex Systems Science In Biomedicine

Author : Thomas Deisboeck J Yasha Kresh / **Category**

: Medical / **Total Pages :** 864 pages

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Summary : Free complex systems science in biomedicine pdf download - complex systems science in biomedicine thomas s deisboeck and j yasha kresh complex systems science in biomedicine covers the emerging field of systems science involving the application of physics mathematics engineering and computational methods and techniques to the study of biomedicine including nonlinear dynamics at the molecular cellular multi-cellular tissue and organismic level with all chapters helmed by leading scientists in the field complex systems science in biomedicine s goal is to offer its audience a timely compendium of the ongoing research directed to the understanding of biological processes as whole systems instead of as isolated component parts in parts i ii complex systems science in biomedicine provides a general systems thinking perspective and presents some of the fundamental theoretical underpinnings of this rapidly emerging field part iii then follows with a multi-scaled approach spanning from the molecular to macroscopic level exemplified by studying such diverse areas as molecular networks and developmental processes the immune and nervous systems the heart cancer and multi-organ failure the volume concludes with part iv that addresses methods and techniques driven in design and development by this new understanding of biomedical science key topics include historic perspectives of general systems thinking fundamental methods and techniques for studying complex dynamical systems applications from molecular networks to disease processes enabling technologies for exploration of systems in the life sciences complex systems science in biomedicine is essential reading for experimental theoretical and interdisciplinary scientists working in the biomedical research field interested in a comprehensive overview of this rapidly emerging field about the editors thomas s deisboeck is currently assistant professor of radiology at massachusetts general hospital and harvard medical school in boston an expert in interdisciplinary cancer modeling dr deisboeck is director of the complex biosystems modeling laboratory which is part of the harvard-mit martinis center for biomedical imaging j yasha kresh is currently professor of cardiothoracic surgery and research director professor of medicine and director of cardiovascular biophysics at the drexel

university college of medicine an expert in dynamical systems he holds appointments in the school of biomedical engineering and health systems dept of mechanical engineering and molecular pathobiology program prof kresh is fellow of the american college of cardiology american heart association biomedical engineering society american institute for medical and biological engineering

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