Radiation damage in biomolecular systems

Abstrak

This book summarizes the advances achieved by these research groups after more than ten years of studies on radiation damage in biomolecular systems.
An extensive Part I deals with recent experimental and theoretical findings on radiation induced damage at the molecular level. It includes many contributions on electron and positron collisions with biologically relevant molecules. X-ray and ion interactions are also covered. Part II addresses different approaches to radiation damage modelling. In Part III biomedical aspects of radiation effects are treated on different scales. After the physics-oriented focus of the previous parts, there is a gradual transition to biology and medicine with the increasing size of the object studied. Finally, Part IV is dedicated to current trends and novel techniques in radiation reserach and the applications hence arising. It includes new developments in radiotherapy and related cancer therapies, as well as technical optimizations of accelerators and totally new equipment designs, giving a glimpse of the near future of radiation-based medical treatments.