

Introduction to Ion Beam Biotechnology

Yu Zengliang, Professor

Key Laboratory of Ion Beam Bioengineering

Chinese Academy of Sciences

Institute of Plasma Physics

Hefei, People's Republic of China

Introduction to Ion Beam Biotechnology presents an up-to-date treatment of modern ion beam biotechnology with respect to applications of ion beam bombardment of living cellular material in the hybrid field of ion beam physics and biology. This focus affirms Springer's commitment to publishing important introductory topics of emerging areas of interest to bioscience researchers, bioengineers, and their colleagues in affiliated disciplines.

Introduction to Ion Beam Biotechnology contains reviews and discussions of contemporary and relevant topics in the field. It is intended to serve both as an introductory textbook at the graduate and advanced undergraduate levels in a bioengineering curriculum, and as a guide and reference for seasoned researchers in the field.

Key Topics include:

- Ion beam formation
- Ion implantation fundamentals
- Interaction between energetic ions and biological organisms
- Reaction processes of ion implanted biological small molecules
- Damage and repair of ion-bombarded DNA
- Cell damage due to ion bombardment
- Biological effects of ion implantation
- Fundamentals of ion-bombardment-induced genetic variation
- Ion beam mutation breeding of crops
- Ion beam mutation breeding of microbes
- Ion beam induced gene transfer
- Ion beam induced synthesis of organic molecules
- Single-ion bombardment mutation of cells

This compendium on this novel new area of scientific research is essential reading for all academics, research scientists, biologists, and industry professionals wishing to take advantage of the latest developments in this emerging field.

About the Author:

Prof. Yu Zengliang is a pioneer and major figure in the field of ion beam biotechnology. An internationally recognized scientist with numerous publications, Prof. Yu is Director of the Key Laboratory of Ion Beam Bioengineering of Chinese Academy of Sciences, at Institute of Plasma Physics, Hefei, People's Republic of China.

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