

## **About the Book**

*This book is an effort to present a scenario of research in materials science with SHI in a way which could be useful for the students planning research in ion accelerator material science. We would like to emphasize that the material is prepared with the help of researchers in this area and is based on their publications and existing material. The challenges was to try and convert the large number of research publications in the field into a kind of a text to motivate the students to plan their experiments with a focus on engineering some well defined property of some materials to make its application possible. First chapters provide an overview of the field, challenges in materials and state-of-the-art developments in ion beams, very brief description of ion matter interaction and survey of the wide field of applications of ion beams for the characterization and analysis of materials. The next two chapters are one the SHI induced ion beam mixing and SHI for synthesis and modification of nanostructured material. The last chapter focuses on engineering the properties of material with SHI , where various types of materials are considered. It covers different types of material. It has not been possible to cover all the materials which have been worked upon using SHI irradiation.*

## **Contents:**

- 1. ION beams for material engineering- an overview*
- 2. Ion matter interaction*
- 3. Ion beam analysis*
- 4. Engineering of materials by Swift heavy Ion beam mixing*
- 5. SHI for synthesis and modification of nanostructured*
- 6. Material engineering with swift heavy Ions*