SELECTED TOPICS ON DATA ANALYSIS IN ASTRONOMY

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Data Analysis in Astronomy
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INTRODUCTION

The main topics covered by the book regard the new developments of the methods and computer architectures in the field of Data Analysis in Astronomy and Astrophysics.

The quality and the style of the contributions are such as to cover the interests of both experts in data analysis and students of an high degree course.

The book is organized in five chapters:

- 1- Fundamentals of Data Analysis in Astronomy
It gives a comprehensive overview of the methodologies used at different wavelength bands from Radio to High Energies, relating the nature of the physical processes to the data treatment.
- 2- Computational techniques
The chapter deals with the new advanced methods that have been introduced in the analysis of astronomical data in relation to their computational problems.
- 3- Evolution of architectures for data processing
The chapter introduces the concept of parallel processing. Both aspects of architectures and processing are critically explored. A review of the existing parallel computers dedicated to the image processing is presented.
- 4- Hardware for graphics and image display
In the chapter are presented basic concepts of computer graphics architectures and new developments in the field.
- 5- Data Analysis systems
The chapter is addressed to the general philosophy and the organizational aspects of the data treatment in Astronomy. Attention is given to evaluate the trend for the sector devoted to work-stations. The expert system development is explored.