

1. Record Nr.	UNINA9910457282803321
Titolo	Adventures in cosmology [[electronic resource] /] / editor, David Goodstein
Pubbl/distr/stampa	Singapore, : World Scientific, 2011
ISBN	1-283-43342-7 9786613433428 981-4313-86-6
Descrizione fisica	1 online resource (423 p.)
Altri autori (Persone)	GoodsteinDavid L
Disciplina	523.1
Soggetti	Cosmology Dark matter (Astronomy) Galaxies Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	CONTENTS; 1. Introduction; 2. Galaxy Formation: From Start to Finish Andrew Benson; 2.1 Historical Perspective; 2.2 The Universe Before Galaxies; 2.3 The Story So Far; 2.3.1 The end of the dark ages; 2.3.2 Population III and the first galaxies; 2.3.3 The reionization of the universe; 2.3.4 Establishing the Hubble sequence; 2.3.5 The rise of the supermassive black holes; 2.4 What the Future Holds; References; 3. The Reionization of Cosmic Hydrogen by the First Galaxies Abraham Loeb; 3.1 Introduction; 3.1.1 Observing our past; 3.1.2 The expanding Universe; 3.2 Galaxy Formation 3.2.1 Growth of linear perturbations3.2.2 Halo properties; 3.2.3 Formation of the first stars; 3.2.4 Gamma-ray bursts: probing the first stars one star at a time; 3.2.5 Supermassive black holes; 3.2.6 The epoch of reionization; 3.2.7 Post-reionization suppression of low-mass galaxies; 3.3 Probing the Diffuse Intergalactic Hydrogen; 3.3.1 Lyman-alpha absorption; 3.3.2 21-cm absorption or emission; 3.3.2.1 The spin temperature of the 21-cm transition of hydrogen; 3.3.2.2 A handy tool for studying cosmic reionization; 3.4 Epilog; Acknowledgments; Further Reading; References

4. Clusters of Galaxies Elena Pierpaoli 4.1 What are Galaxy Clusters? Why are They Interesting?; 4.2 Structure Formation; 4.3 How do We Observe Clusters?; 4.4 Clusters in Cosmology; 4.5 Dark Matter or Modified Gravity?; 4.6 Gas, Galaxies and Their Evolution; Acknowledgments; References; 5. Reionizing the Universe with the First Sources of Light Volker Bromm; 5.1 The End of The Dark Ages; 5.2 Formation of a Population III Star; 5.3 Feedback in the Early Universe; 5.4 Brief History of Reionization; 5.5 Empirical Probes for Reionization; 5.6 Explosions at Cosmic Dawn; 5.7 The First Black Holes 5.8 Toward the First Galaxies Acknowledgments; References; 6. Mapping the Cosmic Dawn Steven Furlanetto; 6.1 A Brief History of Our Universe: From Soup to Galaxies; 6.2 The Hidden Cosmic Dawn; 6.3 The Solution: Flipping Spins; 6.4 The Spin-Flip Transition as an Astronomical Tool; 6.5 Foiled!: Early Cosmology with the Spin-Flip Transition; 6.6 Spin-Flip Radiation Holds the Key to Observing the Cosmic Dawn; 6.7 The Spin-Flip Background: The First Stars; 6.8 The Spin-Flip Background: The First Black Holes; 6.9 The Spin-Flip Background: The Epoch of Reionization 6.10 FM Radio Antennae as Cosmic Observatories 6.11 Piles and Tiles of Antennae: Mapping the Spin-Flip Background; 6.12 Mountains to Scale: Challenges to Observing the Spin-Flip Background; 6.13 Sound and Fury, Signifying Statistics; 6.14 An Explosion of Telescopes; 6.15 Dreams for the Future; 6.16 An Unfinished Story; 7. Neutrino Masses from Cosmology Ofer Lahav and Shaun Thomas; 7.1 A Brief History of Cosmological Neutrinos and Hot Dark Matter; 7.2 Insights from Particle Physics; 7.3 Background to Cosmology; 7.4 The Physics of Cosmological Neutrinos; 7.5 Observational Methods 7.5.1 The cosmic microwave background

Sommario/riassunto

This volume tells of the quest for cosmology as seen by some of the finest cosmologists in the world. It starts with "Galaxy Formation from Start to Finish" and ends with "The First Supermassive Black Holes in the Universe," exploring in between the grand themes of galaxies, the early universe, expansion of the universe, dark matter and dark energy. This up-to-date collection of review articles offers a general introduction to cosmology and is intended for all probing into the profound questions on where we came from and where we are going.
