

1. Record Nr.	UNINA9910455046803321
Autore	Overduin J. M (James Martin), <1965->
Titolo	The light/dark universe [[electronic resource] ] : light from galaxies, dark matter and dark energy / / James M. Overduin, Paul S. Wesson
Pubbl/distr/stampa	Singapore ; ; Hackensack, NJ, : World Scientific, c2008
ISBN	981-283-442-7
Descrizione fisica	1 online resource (236 p.)
Altri autori (Persone)	WessonPaul S
Disciplina	523 523.015
Soggetti	Olbers' paradox Dark matter (Astronomy) Dark energy (Astronomy) Galaxies - Spectra Cosmology 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 (p. 203-216) and index.
Nota di contenuto	Preface; Contents; 1. The Enigma of the Dark Night Sky; 1.1 Why is the sky dark at night?; 1.2 ""By reason of distance""; 1.3 Island Universe; 1.4 Non-uniform sources; 1.5 Tired light; 1.6 Absorption; 1.7 Fractal Universe; 1.8 Finite age; 1.9 Dark stars; 1.10 Curvature; 1.11 Ether voids; 1.12 Insufficient energy; 1.13 Light-matter interconversion; 1.14 Cosmic expansion; 1.15 Olbers' paradox today; 2. The Intensity of Cosmic Background Light; 2.1 Bolometric intensity; 2.2 Time and redshift; 2.3 Matter, energy and expansion; 2.4 How important is expansion?; 2.5 Simple at models 2.6 Curved and multi-uid models2.7 A bright sky at night?; 3. The Spectrum of Cosmic Background Light; 3.1 Spectral intensity; 3.2 Luminosity density; 3.3 The delta function .; 3.4 The normal distribution; 3.5 The thermal spectrum; 3.6 The spectra of galaxies; 3.7 The light of the night sky; 3.8 R.I.P. Olbers' paradox; 4. Dark Cosmology; 4.1 The four dark elements; 4.2 Baryons; 4.3 Dark matter; 4.4 Neutrinos; 4.5 Dark energy; 4.6 Cosmological concordance; 4.7 The coincidental Universe; 5. The Radio and Microwave Backgrounds; 5.1

The cosmological "constant"; 5.2 The scalar field  
5.3 Decaying dark energy 5.4 Energy density; 5.5 Source luminosity; 5.6  
Bolometric intensity; 5.7 Spectral energy distribution; 5.8 Dark energy  
and the background light; 6. The Infrared and Visible Backgrounds; 6.1  
Decaying axions; 6.2 Axion halos; 6.3 Bolometric intensity; 6.4 Axions  
and the background light; 7. The Ultraviolet Background; 7.1 Decaying  
neutrinos; 7.2 Neutrino halos; 7.3 Halo luminosity; 7.4 Free-streaming  
neutrinos; 7.5 Extinction by gas and dust; 7.6 Neutrinos and the  
background light; 8. The X-ray and Gamma-ray Backgrounds; 8.1  
Weakly interacting massive particles  
8.2 Pair annihilation 8.3 One-loop decay; 8.4 Tree-level decay; 8.5  
Gravitinos; 8.6 WIMPs and the background light; 9. The High-Energy  
Gamma-ray Background; 9.1 Primordial black holes; 9.2 Evolution and  
density; 9.3 Spectral energy distribution; 9.4 Bolometric intensity; 9.5  
Spectral intensity; 9.6 Higher dimensions; 10. The Universe Seen  
Darkly; Bibliography; Index

---

Sommario/riassunto

To the eyes of the average person and the trained scientist, the night sky is dark, even though the universe is populated by myriads of bright galaxies. Why this happens is a question commonly called Olbers' Paradox, and dates from at least 1823. How dark is the night sky is a question which preoccupies astrophysicists at the present. The answer to both questions tells us about the origin of the universe and the nature of its contents - luminous galaxies like the Milky Way, plus the dark matter between them and the mysterious dark energy which appears to be pushing everything apart. In this bo

---