

1. Record Nr.	UNINA9910462385703321
Autore	Gray Malcolm <1962->
Titolo	Maser sources in astrophysics // Malcolm Gray, Jodrell Bank Centre for Astrophysics, the University of Manchester [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2012
ISBN	1-107-22602-3 1-280-87794-4 9786613719256 1-139-37818-X 0-511-97753-0 1-139-37532-6 1-139-37133-9 1-139-37961-5 1-139-37675-6
Descrizione fisica	1 online resource (x, 419 pages) : digital, PDF file(s)
Collana	Cambridge astrophysics ; ; 50
Disciplina	523.01/875344
Soggetti	Astronomical masers Radio astronomy Microwave measurements
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: 1. Introduction; 2. Discovery; 3. Basic theory; 4. Observations of masers; 5. Maser molecules; 6. Environments of masers; 7. Advanced theory; 8. Computer modelling; 9. Masers as diagnostics; 10. Future prospects; Appendices; References; Index.
Sommario/riassunto	Masers are observed at a range of scales - from comets, through star-forming clouds, to galactic nuclei - and have many astrophysical applications, for example measuring cosmological distances. Written for postgraduate students and professional researchers in molecular astrophysics, this volume is an up-to-date survey of the theory and observations of astrophysical maser sources and their use as astronomical tools. The book summarizes the history of the discovery of various maser molecules and lines, and discusses maser

observations on various scales. The theory is discussed in detail, including the quantum-mechanical response of the molecules, before being linked to more general radiation transfer. A discussion of spectral-line radio astronomy techniques shows how maser observations can be applied more generally to radio astronomy. The book introduces new and projected instruments, including ALMA and SKA. Additional topics address the radiation statistics of astrophysical masers, and numerical methods of analysis.
