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Titolo	Millimeter Astronomy [[electronic resource]] : Saas-Fee Advanced Course 38. Swiss Society for Astrophysics and Astronomy / / by T. L. Wilson, Stéphane Guilloteau ; edited by Miroslava Dessauges-Zavadsky, Daniel Pfenniger
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Nota di contenuto	Introduction to Millimeter/Sub-Millimeter Astronomy (T.L. Wilson) -- 1 Introduction -- 2 Some Background -- 3 Theory of Receivers -- 4 Practical Receivers -- 5 Filled Aperture Antennas -- 6 Single Dish Observational Methods -- 7 Interferometers and Aperture Synthesis -- 8 Continuum Emission from mm/sub-mm Sources -- 9 Spectral Line Basics -- 10 Line Radiation from Atoms -- 11 Emission Nebulae, Radio Recombination Lines -- 12 Overview of Molecular Basics -- 13 Astronomical Applications -- References -- Star Formation with ALMA (S. Guilloteau) -- 1 Introduction -- 2 Dust as a Probe of Star Formation -- 3 Using Molecules -- 4 Prestellar Cores -- 5 Class 0 -- 6 Outflows -- 7 Protoplanetary Disks -- 8 High-Mass Stars -- 9 Nonstandard Observations -- 10 Conclusions: The promise of ALMA -- References.
Sommario/riassunto	The millimeter and sub-millimeter wavebands are unique in astronomy in containing several thousands of spectral lines of molecules as well as

the thermal continuum spectrum of cold dust. They are the only bands in the electromagnetic spectrum in which we can detect the molecular gas reservoir for star formation and cold dust far away in high-redshift galaxies, and nearby in low-temperature cocoons of protostars and protoplanets. This book is based on and extensively updated from the lectures given during the Saas-Fee Advanced Course 38 on millimeter astronomy. It presents both the observing techniques and the scientific perspectives of observations at millimeter wavelengths, here in particular the star and planet formation. The chapters by Thomas L. Wilson and Stéphane Guilloteau have been edited by Miroslava Dessauges-Zavadsky and Daniel Pfenniger. The book is part of the series of Saas-Fee Advanced Courses published since 1971. The targeted audience are graduate PhD and advanced undergraduate students, but the book also serves as reference for post-doctoral researchers or newcomers to the field.