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Nota di contenuto	Stellar photospheres and molecules — A view from the bridge -- Dominating molecules in the photospheres of cool stars -- Opacity problems in cool low mass stars -- Molecular opacities in cool dwarf stars -- White dwarfs -- Astrophysical applications of approximate methods for molecular opacities — from stars to substellar brown dwarfs -- Infrared spectroscopy and molecules in circumstellar envelopes -- Molecular abundances in the envelopes around evolved stars -- Polynes and polycyclic aromatic molecules in c-rich circumstellar envelopes -- Improvements in the computation of grain opacity -- From molecules to grains -- Opacity problems in protostellar objects -- Molecules in the sun and molecular data -- Pressure-induced molecular absorption in stellar atmospheres -- Continuous molecular opacities and photodissociation -- Effects of non-local thermodynamic equilibrium (NLTE) on molecular opacities -- Dissociation energies and partition functions of small molecules -- Atomic opacities -- Computation of the absorption coefficient for diatomic molecules -- Computation of opacities for diatomic molecules -- Computation of frequencies and linestrengths for triatomic

molecules of astronomical interest -- Computational approaches to determining accurate band strengths -- Ab initio calculations of absorption coefficients of small carbon hydride molecules -- The RASSCF, RASSI, and CASPT2 methods used on small molecules of astrophysical interest -- The MORBID method -- Experimental measurement of weak band intensities -- Oscillator strengths and excited state lifetimes in metallic hydrides and oxides -- The Berkeley program on molecules of astrophysical interest -- Production, detection and study in the infrared of unstable molecules and radicals -- Laboratory millimeter wave spectroscopy of small reactive species -- Table of contents for "Poster session proceedings of IAU Colloquium 146: Molecular opacities in the stellar environment".

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Sommario/riassunto

This volume gives an excellent survey of our present knowledge of molecular processes in stellar and proto-stellar objects. It reviews molecular physics in stellar environments and is intended to bridge the gap between astrophysicists and chemists. The topics range from the theoretical to the computational and include observational data. Among the topics treated are questions of stellar evolution, the determination of physical properties and structures, and the chemical composition of stellar protospheres. Opacity is studied in the context of various types of stellar and proto-stellar objects.

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