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Sommario/riassunto

This is volume 5 of Planets, Stars and Stellar Systems, a six-volume compendium of modern astronomical research, covering subjects of key interest to the main fields of contemporary astronomy. This volume on “Galactic Structure and Stellar Populations”, edited by Gerard F. Gilmore, presents accessible review chapters on Stellar Populations, Chemical Abundances as Population Tracers, Metal-Poor Stars and the Chemical Enrichment of the Universe, The Stellar and Sub-Stellar Initial Mass Function of Simple and Composite Populations, The Galactic Nucleus, The Galactic Bulge, Open Clusters and Their Role in the Galaxy, Star Counts and the Nature of Galactic Thick Disk, The Infrared Galaxy, Interstellar PAHs and Dust, Galactic Neutral Hydrogen, High-Velocity Clouds, Magnetic Fields in Galaxies, Astrophysics of Galactic Charged Cosmic Rays, Gamma-Ray Emission of Supernova Remnants and the Origin of Galactic Cosmic Rays, Galactic Distance Scales, Globular Cluster Dynamical Evolution, Dynamics of Disks and Warps, Mass Distribution and Rotation Curve in the Galaxy, Dark Matter in the Galactic Dwarf Spheroidal Satellites, and History of Dark Matter in Galaxies. All chapters of the handbook were written by practicing professionals. They include sufficient background material and references to the current literature to allow readers to learn enough about a specialty within astronomy, astrophysics and cosmology to get started on their own practical research projects. In the spirit of the series Stars and Stellar Systems published by Chicago University Press in the 1960s and 1970s, each chapter of Planets, Stars and Stellar Systems can stand on its own as a fundamental review of its respective sub-discipline, and each volume can be used as a textbook or recommended reference work for advanced undergraduate or postgraduate courses. Advanced students and professional astronomers in their roles as both lecturers and researchers will welcome Planets, Stars and Stellar Systems as a comprehensive and pedagogical reference work on astronomy, astrophysics and cosmology.