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Nota di contenuto	Relativistic Jets from Active Galactic Nuclei; Contents; Preface; List of Contributors; Glossary and Acronyms; Part One Introduction; 1 Introduction and Historical Perspective; 1.1 A Brief History of Jets; 1.1.1 Synchrotron Emission as the Primary Process for Continuum Radio Sources; 1.1.2 Occurrence/Ubiquity of Radio Jets; 1.1.3 Origin of the Notion that SMBHs Reside in All Galactic Nuclei; 1.1.4 Working Out of Relativistic Effects; 1.1.5 Microquasars; 1.2 Jets at Optical, UV, X-Rays and -Rays; 1.2.1 HST Optical/UV Jets; 1.2.2 X-Ray Jets; 1.2.3 Jets in -Rays; 1.2.4 Gamma-Ray Bursts 1.3 The Role of Simulations1.4 Jet Composition; 1.4.1 Options; 1.4.2 Constraints; 1.5 Some Things (We Think) We Know, and Some (We Know) We Don't; References; Part Two Theory Basics; 2 Special Relativity of Jets; 2.1 Space-Time, Four-Vectors, and Lorentz Invariance; 2.1.1 Interaction Thresholds; 2.2 Lorentz Transformations; 2.3 Relativistic Jet

Diagnostics; 2.3.1 Size Constraint from Variability; 2.3.2 Superluminal Motion; 2.3.3 Lorentz Factor and Viewing Angle Estimates; References; 3 Radiation Processes; 3.1 Radiative Transfer: Definitions; 3.1.1 Radiative Flux, Intensity, Energy Density
3.1.2 The Radiative Transfer Equation3.2 Nonthermal Emission Processes; 3.2.1 Synchrotron Radiation; 3.2.2 Compton Scattering; 3.2.3 Absorption and Pair Production; 3.2.4 -Hadron Interactions; 3.3 Electromagnetic Cascades; References; 4 Central Engines: Acceleration, Collimation and Confinement of Jets; 4.1 Central Engine; 4.1.1 Bondi Flow; 4.1.2 Disk Accretion; 4.1.3 The Eddington Limit; 4.1.4 Fuel Supply; 4.2 Magnetic Fields; 4.2.1 Basics; 4.2.2 Powering Magnetic Winds and Jets; 4.2.3 The Blandford-Znajek Mechanism; 4.3 Confinement, Collimation, and Acceleration of Jets
4.3.1 Acceleration in Supersonic Regime4.3.2 Acceleration and Differential Collimation; 4.3.3 Jets and Magnetic Towers; References; Part Three Phenomenology; 5 Observational Details: Radio; 5.1 Overall Structures of Radio Sources; 5.1.1 Terminology; 5.2 Parsec-Scale Jets; 5.2.1 One-Sided Jets; 5.2.2 Two-Sided Jets; 5.2.3 VLBI Surveys; 5.2.4 Motions in the Jet; 5.2.5 Relativistic Beams; 5.2.6 Statistical Studies of Compact Jets with VLBI; 5.2.7 Spine-Sheath Configuration; 5.3 Kiloparsec-Scale Jets; 5.3.1 Correlations with Extended Structure and Luminosity; 5.3.2 The Two Jet "Flavors"
5.3.3 Internal Structures of Kiloparsec-Scale Radio Jets5.3.4 Jet Bending on Kiloparsec Scales; 5.4 Modeling Jet Kinematics from Radio Data; 5.4.1 Intensity Asymmetry Modeling: Velocity-Angle Degeneracy; 5.4.2 Polarization Asymmetry Modeling: Resolving the Degeneracy; 5.4.3 Velocity Fields in Weak-Flavor Jets; 5.4.4 Magnetic Field Evolution in Weak-Flavor Jets; 5.4.5 Emissivity Evolution in Weak-Flavor Jets; 5.4.6 Mass, Momentum and Energy Fluxes; 5.4.7 Comparisons with Strong-Flavor Jets; 5.5 Backflow in Bilobed FRI Sources?; References; 6 Optical, Infrared and UV Observations
6.1 A Historical Perspective

Sommario/riassunto

Written by a carefully selected consortium of researchers working in the field, this book fills the gap for an up-to-date summary of the observational and theoretical status. As such, this monograph includes all used wavelengths, from radio to gamma, the FERMI telescope, a history and theory refresher, and jets from gamma ray bursts.For astronomers, nuclear physicists, and plasmaphysicists.