Record Nr. UNINA9910337882903321 Autore Carreto Fidalgo David Titolo Revealing the Most Energetic Light from Pulsars and Their Nebulae / / by David Carreto Fidalgo Cham:,: Springer International Publishing:,: Imprint: Springer,, Pubbl/distr/stampa 2019 **ISBN** 3-030-24194-7 Edizione [1st ed. 2019.] Descrizione fisica 1 online resource (213 pages) Collana Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053 Disciplina 537.535 523.8874 Soggetti **Astrophysics** Observations, Astronomical Astronomy—Observations Gravitation Astrophysics and Astroparticles Astronomy, Observations and Techniques Classical and Quantum Gravitation, Relativity Theory Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia I The very-high-energy sky and the MAGIC telescopes -- II Search for Nota di contenuto TeV emission from the Crab and other pulsars -- III Looking for a pulsar wind nebula in the outer part of our galaxy -- Summary and conclusions -- Appendix -- References. Sommario/riassunto This book reports on the extraordinary observation of TeV gamma rays from the Crab Pulsar, the most energetic light ever detected from this type of object. It presents detailed information on the painstaking analysis of the unprecedentedly large dataset from the MAGIC telescopes, and comprehensively discusses the implications of pulsed TeV gamma rays for state-of-the-art pulsar emission models. Using these results, the book subsequently explores new testing methodologies for Lorentz Invariance Violation, in terms of a wavelength-dependent speed of light. The book also covers an updated

search for Very-High-Energy (VHE), >100 GeV, emissions from

millisecond pulsars using the Large Area Telescope on board the Fermi satellite, as well as a study on the promising Pulsar Wind Nebula candidate PSR J0631. The observation of VHE gamma rays is essential to studying the non-thermal sources of radiation in our Universe. Rotating neutron stars, also known as pulsars, are an extreme source class known to emit VHE gamma rays. However, to date only two pulsars have been detected with emissions above 100 GeV, and our understanding of their emission mechanism is still lacking.