

## Contents

<i>Foreword</i>	vii
<i>Preface</i>	ix
<i>List of Figures</i>	xvii
<i>List of Tables</i>	xxxii
1. Cosmological Stochastic Gravitational Wave Background <i>José Antonio de Freitas Pacheco</i>	1
2. Neutrino Flavor Oscillations in Gamma-Ray Bursts <i>Jorge A. Rueda and Juan D. Uribe</i>	53
3. Gamma-Rays and the New Multi-messenger Astrophysics <i>Ulisses Barres de Almeida</i>	117
4. Dark Matter and Dark Energy vs. Modified Gravity: An Appraisal <i>Daniela Pérez</i>	147
5. Hot Neutron Star Matter and Proto-neutron Stars <i>Delaney Farrell, Aksel Alp, Fridolin Weber, William Spinella, Germán Malfatti, Milva G. Orsaria and Ignacio F. Ranea-Sandoval</i>	199

6. Review on the Pseudo-complex General Relativity and Dark Energy 261  
*Peter O. Hess*
7. Alternative Gravity Neutron Stars in the Gravitational Wave Era 285  
*Pedro H. R. S. Moraes*
8. Quark Deconfinement in Compact Stars Through Sexaquark Condensation 317  
*David Blaschke, Oleksii Ivanytskyi and Mahboubeh ShahrbaF*