



*universe*



*Special Issue Reprint*

## **Gravitational Lensing and Optical Geometry**

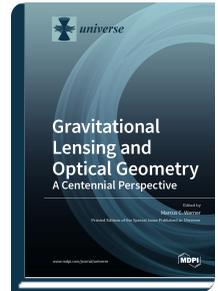
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The year 2019 saw the centenary of Eddington's eclipse expeditions and the corroboration of Einstein's general relativity by gravitational lensing. To mark the occasion, a Special Issue of Universe has been dedicated to the theoretical aspects of strong gravitational lensing. The articles assembled in this volume contain original research and reviews and apply a variety of mathematical techniques that have been developed to study this effect, both in 3-space and in spacetime. These include:

- Mathematical properties of the standard thin lens approximation, in particular caustics;
- Optical geometry, the Gauss–Bonnet method and related approaches;
- Lensing in the spacetime of general relativity and modified theories; black hole shadows.



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