

1. Record Nr.	UNINA9910739474703321
Autore	Fabbrichesi Marco
Titolo	The physics of the dark photon : a primer // Marco Fabbrichesi, Emidio Gabrielli, Gaia Lanfranchi
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] Â©2021
ISBN	3-030-62519-2
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (X, 78 p. 19 illus., 17 illus. in color.)
Collana	SpringerBriefs in Physics, , 2191-5423
Disciplina	539.721
Soggetti	Photons Dark matter (Astronomy) Bosons
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Phenomenology of the Massless Dark Photon -- Phenomenology of the Massive Dark Photon -- Concluding Remarks.
Sommario/riassunto	This book is about the dark photon which is a new gauge boson whose existence has been conjectured. Due to its interaction with the ordinary, visible photon, such a particle can be experimentally detected via specific signatures. In this book, the authors review the physics of the dark photon from the theoretical and experimental point of view. They discuss the difference between the massive and the massless case, highlighting how the two phenomena arise from the same vector portal between the dark and the visible sector. A review of the cosmological and astrophysical observations is provided, together with the connection to dark matter physics. Then, a perspective on current and future experimental limits on the parameters of the massless and massive dark photon is given, as well as the related bounds on milli-charged fermions. The book is intended for graduate students and young researchers who are embarking on dark photon research, and offers them a clear and up-to-date introduction to the subject.