1.

Record Nr.	UNINA9910502645003321
Autore	Zhu Yichao
Titolo	Equations and Analytical Tools in Mathematical Physics : A Concise Introduction / / by Yichao Zhu
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2021
ISBN	9789811654411
	9811654417
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (255 pages)
Collana	Physics and Astronomy Series
Disciplina	515.353
Soggetti	Mathematical physics
	Mathematics
	Differential equations
	Mathematical Methods in Physics
	Applications of Mathematics
	Mathematical Physics
	Differential Equations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I – Second-order Linear Partial Differential Equations -- Chapter 1 Wave Equation -- Chapter 2 Heat Equation -- Chapter 3 Poisson's Equation -- Chapter 4 Discussion on Second-order Linear Partial Differential Equations -- Part II – Special Functions -- Chapter 5 Bessel Function -- Chapter 6 Legendre Polynomial -- Chapter 7 Special Functions through Hypergeometric Function.
Sommario/riassunto	This book highlights a concise and readable introduction to typical treatments of partial differential equations in mathematical physics. Mathematical physics is regarded by many as a profound discipline. In conventional textbooks of mathematical physics, the known and the new pieces of knowledge often intertwine with each other. The book aims to ease readers' struggle by facilitating a smooth transition to new knowledge. To achieve so, the author designs knowledge maps before each chapter and provides comparative summaries in each chapter whenever appropriate. Through these unique ways, readers can clarify the underlying structures among different equations and extend one's

vision to the big picture. The book also emphasizes applications of the knowledge by providing practical examples. The book is intended for all those interested in mathematical physics, enabling them to develop a solid command in using partial differential equations to solve physics and engineering problems in a not-so-painful learning experience.