

1. Record Nr.	UNINA9910373932903321
Titolo	Plasma Catalysis : Fundamentals and Applications // edited by Xin Tu, J. Christopher Whitehead, Tomohiro Nozaki
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-05189-7
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (IX, 348 p. 181 illus., 127 illus. in color.)
Collana	Springer Series on Atomic, Optical, and Plasma Physics, , 1615-5653 ; ; 106
Disciplina	530.44
Soggetti	Plasma (ionized gases) Catalysis Renewable energy resources Environmental engineering Biotechnology Plasma Physics Renewable and Green Energy Environmental Engineering/Biotechnology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- 1. Plasma-catalysis: Introduction and History -- 2. Plasma-catalysis systems -- 3. Plasma-catalyst interactions -- 4. Plasma-catalysis modeling -- 5. Plasma catalytic removal of NOX -- 6: Plasma catalytic removal of VOCs -- Plasma catalytic decomposition of NH3 -- 8 Plasma catalytic conversion of methane -- 9 Plasma catalytic conversion of carbon dioxide -- 10 Plasma catalytic conversion of alcohol -- 11 Plasma catalysis challenges and future perspectives.
Sommario/riassunto	This book provides a comprehensive overview of the field of plasma catalysis, regarded as a promising alternative to thermal processes for energy and environmental applications. It bridges the gap between the plasma and catalysis research communities, covering both the fundamentals of plasma catalysis and its application in environmental and energy research. The first section of the book offers a broad introduction to plasma catalysis, covering plasma-catalyst systems,

interactions, and modeling. The core of the book then focuses on different applications, describing a wide range of plasma-catalytic processes in catalyst synthesis, environmental clean-up, greenhouse gas conversion and synthesis of materials for energy applications. Chapters cover topics ranging from removal of NO_x and VOCs to conversion of methane, carbon dioxide and the reforming of ethanol and methanol. Written by a group of world-leading researchers active in the field, the book forms a valuable resource for scientists, engineers and students with different research backgrounds including plasma physics, plasma chemistry, catalysis, energy, environmental engineering, electrical engineering and material engineering.
