

1. Record Nr.	UNINA9910254028803321
Autore	Srivastava Rohit
Titolo	Growth and Form of Self-organized Branched Crystal Pattern in Nonlinear Chemical System // by Rohit Srivastava, Narendra Yadav, Jayeeta Chattopadhyay
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2016
ISBN	981-10-0864-7
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (79 p.)
Collana	SpringerBriefs in Molecular Science, , 2191-5415
Disciplina	540
Soggetti	Physical chemistry Materials - Analysis Crystallography Analytical chemistry Physical Chemistry Characterization and Analytical Technique Crystallography and Scattering Methods Analytical Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Introduction -- Growth and Form of Diffusion-limited-Aggregation Crystal Pattern -- Growth and Form of Spherulitic Crystal Pattern -- Summary of the Research Work -- Future Prospects -- Reference.
Sommario/riassunto	The book introduces the oscillatory reaction and pattern formation in the Belousov-Zhabotinsky (BZ) reaction that became model for investigating a wide range of intriguing pattern formations in chemical systems. So many modifications in classic version of BZ reaction have been carried out in various experimental conditions that demonstrate rich varieties of temporal oscillations and spatio-temporal patterns in non- equilibrium conditions. Mixed-mode versions of BZ reactions, which comprise a pair of organic substrates or dual metal catalysts, have displayed very complex oscillating behaviours and novel space-time patterns during reaction processes. These characteristic spatio-temporal properties of BZ reactions have attracted increasing attention of the scientific community in recent years because of its comparable

periodic structures in electrochemical systems, polymerization processes, and non-equilibrium crystallization phenomena. Instead, non-equilibrium crystallization phenomena which lead to development of novel crystal morphologies in constraint of thermodynamic equilibrium conditions have been investigated and are said to be stationary periodic structures. Efforts have continued to analyze insight mechanisms and roles of reaction-diffusion mechanism and self-organization in the growth of such periodic crystal patterns. In this book, non-equilibrium crystallization phenomena, leading to growth of some novel crystal patterns in dual organic substrate modes of oscillatory BZ reactions have been discussed. Efforts have been made to find out experimental parameters where transitions of the spherulitic crystal patterns take place. The book provides the scientific community and entrepreneurs with a thorough understanding and knowledge of the growth and form of branched crystal pattern in reaction-diffusion system and their morphological transition. .
