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The Science Reports of the Tohoku University - Tōhoku Daigaku 1982

Plant Electrophysiology - Alexander G. Volkov 2007-04-19

This book compiles new findings in plant electrophysiology from the work of internationally renowned experts in the fields of electrophysiology, bio-electrochemistry, biophysics, signal transduction, phloem transport, tropisms, ion channels, plant electrochemistry, and membrane transport. Opening with a historical introduction, the book reviews methods in plant electrophysiology, introducing such topics as measuring membrane potentials and ion fluxes, patch-clamp technique, and electrochemical sensors. The coverage includes experimental results and their theoretical interpretation.

Intelligent Materials, Second International Conference Proceedings - Craig A. Rogers 1994-01-01

The key science and technology challenges which will facilitate the transition from a "make do and mend" philosophy inevitably restricting the degree of intelligence which can be engineered and the "designer materials systems" philosophy which is the ultimate goal are considered. The longer term vision will need to accord much more closely with nature's design paradigms, with control at

the molecular, nano, micro and macro level of synthesis and assembly, of active self repair materials systems in function shapes.

Carnivorous Plants - Aaron M. Ellison 2018

This book is a synthesis of the latest research on carnivorous plants, focusing on their physiology, ecology, evolution, and future conservation and research efforts

Jasmonate Signaling - Alain Goossens 2016-08-23

It is now well established that jasmonates, originally identified as the major component of jasmine scent, play a universal role in the plant kingdom and are involved in the regulation of diverse aspects of plant biology, including growth, development, metabolism, and interaction with the environment. In *Jasmonate Signaling: Methods and Protocols*, experts in the field aim to unite powerful emerging omics platforms with a number of key reductionist approaches to form a comprehensive collection of tools and protocols. The detailed chapters in this book embrace physiological, environmental, molecular, omics, and bioinformatics approaches that allow dissecting jasmonate actions in the model species *Arabidopsis thaliana* or in other plants. Written in the highly successful *Methods in Molecular Biology* series format, chapters feature introductions to their respective topics, lists of

the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, along with tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, *Jasmonate Signaling: Methods and Protocols* will empower interested researchers to dissect all steps of jasmonate signaling and the processes they modulate.

Progress in Botany - Ulrich Lüttge 2014-09-22

With one volume each year, this series keeps scientists and advanced students informed of the latest developments and results in all areas of the plant sciences. The present volume includes reviews on physiology, ecology and vegetation science.

Carnivorous Plants of the United States and Canada -

Donald Schnell 2009-05-28

In this greatly expanded and revised edition of his classic treatment, Donald Schnell examines in detail the 45 species and numerous hybrids of carnivorous plants that grow in the U.S. and Canada. Information on each species includes an identifying description, the preferred habitat, the range in which it can be found, and the season for flowering and trapping, making this book a useful field guide as well as a fascinating source of leisure reading. This book is only available through print on demand. All interior art is black and white.

Plant Energetics - Octavian S. Ksenzhek 1998-02-09

Emphasizing the physical and technological aspects of plant energetics, this comprehensive book covers a significant interdisciplinary research area for a broad range of investigators. *Plant Energetics* presents the thermodynamics of energy processes in plants, their interconnection and arrangement, and the estimation of intrinsic energy needs of the plant connected with performing various physiological functions. The book also demonstrates the role of electrical and electrochemical processes in the plants life cycle. *Plant Energetics* incorporates such diverse themes as thermodynamics, biophysics, and bioelectrochemistry with applications in horticulture and ecology. It also discusses the

roles and mechanisms of both quantum and thermophysical processes of the conversion of solar energy by plants, including photosynthesis and long distance transport. Comprehensive details of value to basic and applied researchers dealing with photosynthesis, agriculture, horticulture, bioenergetics, biophysics, photobiology, and plant physiology make *Plant Energetics* an informative, one-stop resource that will save time and energy in your search for the latest information. *Plant Energetics* incorporates such diverse themes as thermodynamics, biophysics, and bioelectrochemistry with applications in horticulture and ecology. It also discusses the roles and mechanisms of both quantum and thermophysical processes of the conversion of solar energy by plants, including photosynthesis and long-distance transport. Extensive details of value to basic and applied researchers dealing with photosynthesis, agriculture, horticulture, bioenergetics, biophysics, photobiology, and plant physiology make *Plant Energetics* an informative, one-stop resource that will save you time and energy in your search for the latest information.

Medicinal and Aromatic Plants XII - Y. P. S. Bajaj 2002-04-24

Deals with the distribution, importance, conventional propagation, micropropagation, tissue culture study, and in vitro production of important medicinal and pharmaceutical compounds in plants.

Venus's Flytrap - Tim S. Bailey 2012

Active Matter - Skylar Tibbits 2017-09-29

The first book on active matter, an emerging field focused on programming physical materials to assemble themselves, transform autonomously, and react to information. The past few decades brought a revolution in computer software and hardware; today we are on the cusp of a materials revolution. If yesterday we programmed computers and other machines, today we program matter itself. This has created new capabilities in design, computing, and fabrication, which allow us to program proteins

and bacteria, to generate self-transforming wood products and architectural details, and to create clothing from “intelligent textiles” that grow themselves. This book offers essays and sample projects from the front lines of the emerging field of active matter. Active matter and programmable materials are at the intersection of science, art, design, and engineering, with applications in fields from biology and computer science to architecture and fashion. These essays contextualize current work and explore recent research. Sample projects, generously illustrated in color, show the range of possibilities envisioned by their makers. Contributors explore the design of active material at scales from nano to micro, kilo, and even planetary. They investigate processes of self-assembly at a microscopic level; test new materials that can sense and actuate themselves; and examine the potential of active matter in the built environment and in living and artificial systems. Active Matter is an essential guide to a field that could shape the future of design.

Cultivated Plants of Southern Africa - H. F. Glen 2002

A listing of almost 9000 kinds of plants known to be cultivated in Southern Africa, or to have been tried here. The information is derived from a database containing details mainly of specimens archived in the National Herbarium, Pretoria.

Directions for Bringing Over Seeds and Plants, From the East-Indies and Other Distant Countries, in a State of Vegetation - John 1710?-1776 Ellis 2021-09-09

This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been

proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

Communication in Plants - František Baluška 2007-02-15

Plant neurobiology is a newly emerging field of plant sciences. It covers signalling and communication at all levels of biological organization – from molecules up to ecological communities. In this book, plants are presented as intelligent and social organisms with complex forms of communication and information processing. Authors from diverse backgrounds such as molecular and cellular biology, electrophysiology, as well as ecology treat the most important aspects of plant communication, including the plant immune system, abilities of plants to recognize self, signal transduction, receptors, plant neurotransmitters and plant neurophysiology. Further, plants are able to recognize the identity of herbivores and organize the defence responses accordingly. The similarities in animal and plant neuronal/immune systems are discussed too. All these hidden aspects of plant life and behaviour will stimulate further intense investigations in order to understand the communicative plants in their whole complexity.

Quick Bibliography Series - 1976

Horticultural Flora of South-Eastern Australia - Roger Spencer 1995

Flowering Plants: Dicotyledons Part 1 is the second in the series. Covering South Australia, Victoria, Tasmania, New South Wales and southern Queensland, the series is a useful guide to temperate plants in other parts of Australia and in New Zealand.

Photosynthesis - Julian J. Eaton-Rye 2011-11-04

“Photosynthesis: Plastid Biology, Energy Conversion and Carbon Assimilation” was conceived as a comprehensive treatment touching on most of the processes important for photosynthesis.

Most of the chapters provide a broad coverage that, it is hoped, will be accessible to advanced undergraduates, graduate students, and researchers looking to broaden their knowledge of photosynthesis. For biologists, biochemists, and biophysicists, this volume will provide quick background understanding for the breadth of issues in photosynthesis that are important in research and instructional settings. This volume will be of interest to advanced undergraduates in plant biology, and plant biochemistry and to graduate students and instructors wanting a single reference volume on the latest understanding of the critical components of photosynthesis.

Biology of Floral Scent - Natalia Dudareva 2006-03-27

As with nearly all living creatures, humans have always been attracted and intrigued by floral scents. Yet, while we have been manufacturing perfumes for at least 5000 years to serve a myriad of religious, sexual, and medicinal purposes, until very recently, the limitation of our olfactory faculty has greatly hindered our capacity to clearly and ob

A Guide to the Wild Flowers - Alice Lounsberry 1899

Biomimetic Principles and Design of Advanced Engineering Materials - Zhenhai Xia 2016-06-06

This book explores the structure-property-process relationship of biomaterials from engineering and biomedical perspectives, and the potential of bio-inspired materials and their applications. A large variety of natural materials with outstanding physical and mechanical properties have appeared in the course of evolution. From a bio-inspired viewpoint, materials design requires a novel and highly cross disciplinary approach. Considerable benefits can be gained by providing an integrated approach using bio-inspiration with materials science and engineering. The book is divided into three parts; Part One focuses on mechanical aspects, dealing with conventional material properties: strength, toughness, hardness, wear resistance, impact resistance, self-

healing, adhesion, and adaptation and morphing. Part Two focuses on functional materials with unique capabilities, such as self-cleaning, stimuli-response, structural color, anti-reflective materials, catalytic materials for clean energy conversion and storage, and other related topics. Part Three describes how to mimic natural materials processes to synthesize materials with low cost, efficient and environmentally friendly approaches. For each chapter, the approach is to describe situations in nature first and then biomimetic materials, fulfilling the need for an interdisciplinary approach which overlaps both engineering and materials science.

Computational Intelligence, Cyber Security and Computational Models - Muthukrishnan Senthilkumar 2015-12-18

This book aims at promoting high-quality research by researchers and practitioners from academia and industry at the International Conference on Computational Intelligence, Cyber Security, and Computational Models ICC3 2015 organized by PSG College of Technology, Coimbatore, India during December 17 - 19, 2015. This book enriches with innovations in broad areas of research like computational modeling, computational intelligence and cyber security. These emerging inter disciplinary research areas have helped to solve multifaceted problems and gained lot of attention in recent years. This encompasses theory and applications, to provide design, analysis and modeling of the aforementioned key areas.

Flora of the Southeastern United States - John Kunkel Small 1913

Aquatic Plants - Namrita Lall 2020-07-26

Aquatic Plants: Pharmaceutical and Cosmetic Applications provides a concise description of popular aquatic plants found across the globe. The chapters in this beautifully illustrated, full-color book focus on the aquatic species native to specific continents. Written by a global team of experts, this book explains

the distribution, ethnobotanical uses, genome sequencing, chemical compounds, and biological activity of these plants and addresses the cultivation and sustainable production of aquatic and wetland plants. Features: Describes the biological activity of a large collection of aquatic plants. Color photographs highlight each plant's ethnobotanical characteristics, and structural formulae show their chemical constituents. Contributions come from leading scientists from countries including the United States, India, Mauritius, South Africa, and Cyprus. **Aquatic Plants: Pharmaceutical and Cosmetic Applications** is a valuable resource for academics conducting research on aquatic plants and for professionals in the pharmaceutical and cosmetic industries who are involved with the therapeutic applications of these plants and their sustainable usage.

Medicinal and Aromatic Plants - Y. P. S. Bajaj 1988

These book series cover the distribution, economic importance, conventional propagation, micropropagation, tissue culture studies, and in vitro production of important medicinal and other pharmaceutical compounds in various medicinal and aromatic crops.

Annual Plant Reviews, Biology of the Plant Cuticle - Markus Riederer 2008-04-15

Annual Plant Reviews, Volume 23 A much clearer picture is now emerging of the fine structure of the plant cuticle and its surface, the composition of cuticular waxes and the biosynthetic pathways leading to them. Studies assessing the impact of UV radiation on plant life have emphasized the role of the cuticle and underlying epidermis as optical filters for solar radiation. The field concerned with the diffusive transport of lipophilic organic non-electrolytes across the plant cuticle has reached a state of maturity. A new paradigm has recently been proposed for the diffusion of polar compounds and water across the cuticle. In the context of plant ecophysiology, cuticular transpiration can now be placed in the perspective of whole-leaf water relations. New and unexpected

roles have been assigned to the cuticle in plant development and pollen-stigma interactions. Finally, much progress has been made in understanding the cuticle as a specific and extraordinary substrate for the interactions of the plant with microorganisms, fungi and insects. This volume details the major developments of recent years in this important interdisciplinary area. It is directed at researchers and professionals in plant biochemistry, plant physiology, plant ecology, phytopathology and environmental microbiology, in both the academic and industrial sectors.

Generation GrowBots: Materials, Mechanisms, and Biomimetic Design for Growing Robots - Barbara Mazzolai 2021-08-18

Carnivorous Plants of the World - James Pietropaolo 1986

Few groups of plants capture the imagination like these carnivores. Among the best known are the Venus fly trap and the various pitcher plants; these and many others are covered.

Plants as Persons - Matthew Hall 2011-05-06

Challenges readers to reconsider the moral standing of plants. *Insectivorous Plants* - Charles Darwin 1875

Medicinal and Aromatic Plants XII - Toshiyuki Nagata 2013-11-11

Medicinal and Aromatic Plants XII comprises 18 chapters. It deals with the distribution, importance, conventional propagation, micropropagation, tissue culture studies, and the in vitro production of important medicinal and pharmaceutical compounds in the following plants: *Artemisia annua*, *Coriandrum sativum*, *Crataegus*, *Dionaea muscipula*, *Hyoscyamus reticulatus*, *Hypericum canariense*, *Leguminosae*, *Malva*, *Ocimum*, *Pergularia tomentosa*, *Phellodendron amurense*, *Sempervivum*, *Solanum aculeatissimum*, *S. chrysotrichum*, *S. kasianum*, *Stephania*, *Trigonella*, and *Vaccinium*. It is tailored to the needs of advanced students, teachers, and research scientists in the fields of

pharmacy, plant tissue culture, phytochemistry, biomedical engineering, and plant biotechnology in general.

Directions for bringing over seeds and plants from the East Indies - John Ellis 1770

Simulation Models, GIS and Nonpoint-source Pollution - David Holloway 1992

Smart Polymer Catalysts and Tunable Catalysis - Songjun Li 2019-09-10

Smart Polymer Catalysts and Tunable Catalysis describes the latest advances in smart polymer catalysts and tunable catalysis. This book will serve as an ideal reference for scientists, students and researchers working in the fields of catalysis, chemical engineering, chemistry, materials science, biotechnology and nanotechnology. Users will find this to be a distinct, systematic and comprehensive body of knowledge on the field with its compilation of essential knowledge and discussions of extensive potential in both social and commercial impacts. Provides a single-source summary of the emerging frontiers in scientific research in smart polymer catalysts and tunable catalysis Includes very well-organized chapters that are illustrated with over 130 illustrations and figures Written by scientists from prestigious universities and industries across the world Edited by veteran researchers in the field of smart polymers and catalysis

Growing Carnivorous Plants - Barry A. Rice 2006

Over 200 species, hybrids, and cultivars from all genera of carnivorous plants are described in this comprehensive volume. Detailed cultivation advice is provided to enable readers to select and place the right plants, while information on how to feed carnivorous plants will enable even the most squeamish grower to ensure that plants receive the nutrients they require.

Aquatic and Wetland Plants of Southeastern United States - Robert K. Godfrey 2011-07-01

This is the long-awaited second volume of Godfrey and Wooten's definitive survey of aquatic and wetland plants of the southeastern United States. It focuses on native and naturalized dicotyledons of the region and provides well-written, concise descriptions and keys for the identification of 1,084 species. A glossary of terms, list of references, separate indexes of common and scientific names, and nearly 400 well-executed drawings complete the volume. The first comprehensive survey of the aquatic and wetland plants of the Southeast, the Godfrey and Wooten volumes will prove invaluable to botanists, ecologists, college students, government agencies involved in land-use management, and nonspecialists interested in the plant life and ecology of the region.

Thomas Jefferson's Flower Garden at Monticello - Edwin Morris Betts 1986

The restoration of the flower gardens at Monticello in 1941, sponsored by the Garden Club of Virginia, was the result of Edwin Betts's scholarly research and Hazlehurst Perkins's practical gardening skills. Thomas Jefferson's Flower Garden at Monticello presents the evolution of Jefferson's ornamental gardening efforts with an analysis of the flower gardens as they were planned, planted, and ultimately restored. No early American gardens were as well-documented as those at Monticello, which became an experimental station, a botanic garden of new and unusual plants from around the world. Betts and Perkins communicate here the nature and sources of Jefferson's intelligent venture into ornamental gardening. The third edition includes a revised plant list, annotation of the more than 100 species cultivated in the flower garden, and new illustrations.

The Carnivorous Plants - Barrie Edward Juniper 1989

Plants, as is now becoming widely recognised, exploit animals in almost as many ways as animals use plants; only rarely, however, do they eat animals in the sense of catching, holding, and devouring prey. The manner, however, in which they function as

carnivores grants insights into plant form, function, and evolution not otherwise readily available. The diversity of morphological, biochemical, and commensal features generates both the lay and the scientific interest in this diverse group. The carnivorous plants exhibit features which are common to many other non-carnivorous plants. However the extent to which these features have developed and the combination of different features in small organs is unique and therefore, can be exploited by using these plants as models for scientific research.

Modeling the Electrochemo-poromechanics of Ionic Polymer Metal Composites and Cell Clusters - Alessandro Leronni 2022-01-03

This book presents a novel continuum finite deformation framework addressing the complex interactions among electrostatics, species transport, and mechanics in solid networks immersed in a fluid phase of solvent and ions. Grounded on cutting-edge multiphysics theories for soft active materials, the proposed model is primarily applied to ionic polymer metal composites (IPMCs). First, the influence of shear deformation on the IPMC response is analyzed through semi-analytical solutions obtained via the method of matched asymptotic expansions. Second, the novel electrochemo-poromechanical theory is used to predict the curvature relaxation and electric discharge that are observed in IPMC actuation and sensing, respectively, under a sustained stimulus. This newly formulated theory is, in turn, applied to biological cell clusters. Here, important mechanical

considerations are integrated into classical bioelectrical models, thus offering novel insights into the interplay of mechanical and electrical signaling in the coordination of developmental processes.

Ionic Polymer Metal Composites (IPMCs) - Mohsen Shahinpoor 2016

A comprehensive resource on ionic polymer metal composites (IPMCs) edited by the leading authority on the subject.

Plant Electrophysiology - Alexander G. Volkov 2012-05-03

This book, written by the leading experts in the field of plant electrophysiology, provides a comprehensive and up-to-date overview of the current state of knowledge on electrical signaling and responses in plant physiology. It covers a significant interdisciplinary area for a broad range of researchers, emphasizing the physical, chemical, biological, and technological aspects of plant electrophysiology, while also demonstrating the role of electrochemical processes and ion channels in plant life cycles. Separate chapters describe the electrophysiology of the Venus flytrap, the Telegraph plant, Mimosa pudica, and other interesting plant species. Subsequent sections focus on mechanisms of plant movement, the role of ion channels, morphing structures, and the effects of electrical signal transduction on photosynthesis and respiration. Further topics include the electrophysiology of plant-insect interactions, how plants sense different environmental stresses and stimuli, and how phytoactuators respond to them. All chapters analyze the generation and transmission of electrical signals in plants.