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"This book aims to provide collection managers ... with biological information on fungi and strategies for both preventing infestation and controlling/eradicating an infestation once it has occurred. Importantly, throughout the text the author addressed the safety issues and the major concerns of health hazards caused by fungal infestations, issues that are covered more specifically in the chapter on monitoring for

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air quality and surface contamination"--Page 4 of cover.

This report attempts to isolate and separately examine each of the factors known to lead to cellulose nitrate decomposition, and then relate their contribution to the instability of the polymer when it is used as a bonding agent for ceramics and as a lacquer for metal objects. These factors include deterioration caused by heat, radiation, or acid impurities, or through the loss of plasticizer. There is, moreover, decomposition caused autocatalytically by the initial breakdown products. In particular,

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the publication examines new information on chemical changes under ambient conditions that has been developed recently through advances in analytical procedures such as chemiluminescence, X-ray scanning spectroscopy (ESCA), and more sophisticated viscometry. This new information will be added to the large body of data, collected over the past 150 years, on the instability of cellulose nitrate under more severe conditions.

This second fully updated and extended edition of *Biotechnology and Conservation of Cultural Heritage* provides in-depth insights

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into the role of different microorganisms and microbial compounds in biodeterioration, conservation and restoration of artworks and artifacts. Latest methods to detect, remove and prevent microbial colonization on artwork surfaces and in air environments of libraries and museums are discussed and illustrated by engaging case studies. Furthermore, this edition covers new case studies on Archaeobiology, exploring ways to perform the molecular biology characterization, restoring and protecting museum taxidermal specimens, preserving and guaranteeing the future integrity. Finally, the use of halloysite-

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nanotubes is investigated to set up innovative protocols in consolidation and long-term protection of waterlogged and archaeological wood. This book addresses to Biologists, Microbiologists, Conservation Scientists and Conservators who are interested in understanding the role of microorganisms and bioactive molecules in conservation projects.

From 2nd to 5th October 2012 an International Congress on Science and Technology for the conservation of Cultural Heritage was held in Santiago de Compostela, Spain, organized by the Universidade of Santiago de Compostela on

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behalf of TechnoHeritage Network. The congress was attended by some 160 participants from 10 countries, which presented a total of 145 contributions among plenary lectures, oral, and poster communications. The congress was dedicated to eight topics, namely (1) Environmental assessment and monitoring (pollution, climate change, natural events, etc.) of Cultural Heritage; (2) Agents and mechanisms of deterioration of Cultural Heritage (physical, chemical, biological), including deterioration of modern materials used in Contemporary Art and information storage; (3)

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Development of new instruments, non invasive technologies and innovative solutions for analysis, protection and conservation of Cultural Heritage; (4) New products and materials for conservation and maintenance of Cultural Heritage; (5) Preservation of industrial and rural heritage from the 19th and 20th centuries; (6) Security technologies, Remote sensing and Geographical Information Systems for protection and management of Cultural Heritage; (7) Significance and social value of Cultural Heritage; and (8) Policies for conservation of Cultural Heritage. This volume publishes a

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total of ninety-three contributions which reflect some of the most recent responses to the challenge of cultural assets conservation.

Fungal Facts

Conservation of Cultural Heritage

The Fungal Community

Microbial Biodeterioration

Solving Fungal Problems in Heritage Collections

Collection Care/Sammlungspflege

Ionic liquids, including the newer subcategory of deep eutectic solvents,

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continue to attract a great deal of research attention in an even increasing number of areas, including traditional areas such as synthesis (organic and materials), electrochemistry, and physical property studies and predictions, as well as less obvious areas such as lubrication and enzymatic transformations. In this volume, recent advances in a number of these different areas are reported and reviewed, thus granting some appreciation for the future that ionic liquid research holds and affording inspiration for those

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who have not previously considered the application of ionic liquids in their area of interest.

The Second International Congress on Science and Technology for the Conservation of Cultural Heritage was held in Seville, Spain, June 24-27, 2014, under the umbrella of the TechnoHeritage network. TechnoHeritage is an initiative funded by the Spanish Ministry of Economy and Competitivity dedicated to the creation of a network which integrates CSIC and University groups, private

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companies and end users such as foundations, museums or institutions. The network's purpose is to foster the creation of transdisciplinary (and not only multidisciplinary) initiatives focused on the study of all assets, movable or immovable, that make up Cultural Heritage. The congress was dedicated to six topics, namely (1) Environmental assessment and monitoring (pollution, climate change, natural events, etc.) of Cultural Heritage; (2) New products and materials for

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conservation and maintenance of Cultural Heritage; (3) Agents and mechanisms of deterioration of Cultural Heritage (physical, chemical, biological), including deterioration of modern materials used in Contemporary Art and information storage; (4) Development of new instruments, non invasive technologies and innovative solutions for analysis, protection and conservation of Cultural Heritage; (5) Security technologies, remote sensing and G.I.S. for the protection and management of Cultural

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Heritage; and (6) Significance, social value and policies for the conservation of Cultural Heritage. This volume publishes a total of seventy-two contributions which reflect some of the most recent responses to the challenge of cultural assets conservation and the application of different scientific approaches to the common goal of the conservation of Cultural Heritage.

Handbook of Material Biodegradation, Biodeterioration, and Biostabilization, Second Edition gives extensive information

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on the microorganisms involved in the biodegradation of materials, along with the biocides which are permitted for use according to the most up-to-date worldwide legislation. Mechanisms of biodegradation and biodeterioration, results of biodeterioration, and methods of biostabilization are covered for a large number of products, making the title relevant for a range of industries and applications, including construction, coatings/paints, medical and pharmaceutical applications, and

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electronics. In addition, the health and safety aspects of biocide application are covered in detail, as well as the personal protection of practitioners who are required to use them. The contents and the most-up-to-date information make this book essential for almost all the fields of applied chemistry. Enables practitioners to identify the organisms responsible for biodeterioration in materials, select suitable preventative measures, and safely deploy methods of biostabilization

Contains information on the

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biostabilization of various industrial products, including 24 groups of polymers Includes critical (and current) health and safety, environmental, and regulatory guidelines and best practices, and their relationships to legislation, regulation, toxicity, micro-organisms, biocides, and polymers Essential reading for scientists and practitioners as new regulations eliminate the use of previously used materials Contains up-to-date information on legislation and regulations governing the use of biocides in the European Union,

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the United States, and worldwide Microorganisms for Sustainable Environment and Health covers hazardous pollutants released from natural as well as anthropogenic activities and implications on environmental and human health. This book serves as a valuable source of basic knowledge and recent developments in the clean technologies and pollution-associated diseases and abnormalities in the context of microorganisms. Focused on current solutions to various environmental problems in the field of bioremediation,

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it provides a detailed knowledge on the various types of toxic environmental pollutants discharged from different sources, their toxicological effects in environments, humans, animals and plants as well as their biodegradation and bioremediation approaches. This book helps environmental scientists and microbiologists learn about existing environmental problems and suggests ways to control or contain their effects by employing various treatment approaches. Provides information on waste treatment

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approaches using microbes Includes applications in biofuel and bioenergy production Covers green belt development, hydroponics, phytoremediation, wetland treatment technology, and common effluent treatment plants (CETPs) Discusses dissemination of antibiotic resistance among pathogenic microbes and strategies to combat multi-drug resistance (MDR) The Fungal Population Microbial Biotechnology Approaches to Monuments of Cultural Heritage Digital Curation: Breakthroughs in

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Research and Practice

Scientific Examination of Art

Technical Advances in Packaging with Flexible Barrier Materials

Biodegradation and Biodeterioration at the Nanoscale

De achteruitgang in waarde of kwaliteit van materialen door micro-organismen wordt voor de volgende stoffen of goederen behandeld: hout, steen, wol, huiden en vellen, metalen, schilderijen en beeldhouwwerk, tabak, brandstoffen

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en olien, latex verfstoffen, rubber, kruiden en cosmetica, plastics
Presents the proceedings of an International Biodegradation Association conference held in September 1993 in Leeds.

Microbes are known to live in an enormous range of environments. Their ability to survive and proliferate in diverse industrial systems is often a surprise to those not exposed to these problems in their work. These systems

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contain a range of potential carbon sources, one common theme being surfactants. Surfactants are often not the components most prone to spoilage since some systems contain highly susceptible natural components, such as starch and xanthum gum, but the surfactant is a key part of the formulation, and its extensive breakdown usually means that the material is beyond recovery. The aim of this book is to describe in detail all

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aspects of the preservation of surfactant containing materials. The book should be viewed as being in three discrete sections. • chapters 1-5 deal with and summarise essential background information • chapters 6-11 discuss in detail various end use applications • chapters 12-15 outline the regulatory and toxicology implication associated with the safe handling of preservatives Given the format of the book there is inevitably some duplication of

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information in the middle section with different authors describing essentially the same phenomena but on different substrates. I hope the reader will find that although different chapters touch on the same topics the information around these areas is sufficiently different to justify their inclusion in this book and to be of interest. It should also demonstrate what can be the most useful source of information, the hard practical

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experience of the authors.

The effective use of technology offers numerous benefits in protecting cultural heritage. With the proper implementation of these tools, the management and conservation of artifacts and knowledge are better attained. Digital Curation:

Breakthroughs in Research and Practice is a critical source of academic knowledge on the preservation, selection, collection, maintenance, and

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archiving of digital materials. Highlighting a range of pertinent topics such as electronic resource management, digital preservation, and virtual restoration, this publication is an ideal reference source for digital curators, technology developers, IT professionals, academicians, researchers, and graduate-level students interested in the curation and preservation of digital resources.

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**Its Organization and Role in the Ecosystem, Fourth Edition
Progress and Developments in Biodeterioration of Works of Art
Evaluation of Cellulose Ethers for Conservation**

The Role of Microbial Communities in the Degradation and Protection of Cultural Heritage

Water Reuse

The preservation of world cultural heritage is a key issue for maintaining

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national identity and understanding the influences or exchanges among civilizations throughout history.

Development of appropriate preservation techniques that do not compromise longevity or authenticity are therefore of utmost importance. Radiation techniques have demonstrated significant success in the disinfestation and preservation of cultural heritage artefacts, and national and international research programmes have developed harmonized methodologies for such radiation treatment. This publication

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provides state of the art knowledge on radiation technology applied to the conservation and consolidation of items of cultural heritage and will be of use to collection curators, conservators, restorers, registrars, art historians, archaeologists and conservation scientists active in the various fields of cultural heritage in museums, libraries, archives, archaeological institutions, historical buildings and conservation workshops. "...a number of chapters provide excellent summaries of the modern methods available

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for studying fungal ecology, along with those more traditional methods that are still extremely valuable...overall it is a hugely valuable compendium of fungal ecology research. It is a must for the library shelf." -Lynne Boddy, Cardiff University, UK, Mycological Research, 2006
"These 44 chapters are an excellent starting point for anyone interested in fungal communities, in the broadest sense of the term. It is a book for dipping into...may be the last comprehensive treatment of fungal communities before the

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molecular revolution." -Meriel Jones, University of Liverpool, UK, Microbiology Today "... the scope of the work is tremendous. ... Excellent chapters providing overviews of methods ... provide a snap shot of the current approaches used to understand fungal communities at several levels of organization. This book should probably be on the shelf of every student of mycology, and many ecologists too. For all students, this book should be a valuable resource and source of inspiration." -Daniel Henk, Imperial

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College Faculty of Medicine, London, in
Inoculum, Vol. 59, No. 3, May 2008
"Thorough taxonomic and subject indices
further aid the reader in navigating
through multiple authors' treatments of
subjects of interest." - Anthony Amend,
Department of Botany, University of Hawaii
at Manoa in Economic Botany, V. 61 ? In
all subjects in science, new findings and
the use of new technologies allow us to
develop an ever-greater understanding of
our world. Expanded and updated coverage
in the fourth edition includes: Adds new

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sections on Integrating Genomics and Metagenomics into Community Analysis, Recent Advances in Fungal Endophyte Research, Fungi in the Built Environment, and Fungal Signaling and Communication Includes a broader treatment of fungal communities in natural ecosystems with in-depth coverage of fungal adaptations to stress and conservation Expands coverage of the influence of climate change on fungi and the role of fungi in organically polluted ecosystems Includes contributions from scientists from 20 nations to

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illustrate a true global approach for bridging gaps between ecological concepts and mycology

To prevent bacterial adherence, invasion and infection, antimicrobials such as antibiotics are being used and vastly researched nowadays. Several factors such as natural selection, mutations in genes, the presence of efflux pumps, impermeability of the cell wall, structural changes in enzymes and receptors, biofilm formation, and quorum sensing cause microorganisms to develop

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resistance against antimicrobials. Isolates that synthesize extended spectrum- β -lactamases (ESBL), induced β -lactamases (IBL), carbapenamases, metallo- β -lactamases (MBLs), and New Delhi metallo- β -lactamases (NDM) have emerged. Determining virulence factors such as biofilms and the level of antimicrobial activities of antimicrobial agents alone and in combination with appropriate doses against microorganisms is very important for the diagnosis, inhibition, and prevention of microbial infection. The goal of this book

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is to provide information on all these topics.

Our country's cultural legacy is one of the world's most diverse, drawing millions of visitors every year to our convents and monuments, and to our museums, libraries, concert halls and festivals. In addition, it is a dynamic trigger of economic activity and jobs. Among the various scientific branches, microbial biotechnology offers an innovative and precise approach to the complexity of problems that restorers face in their

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daily work. This book discusses a range of topics, including the biodiversity of microbial communities from various cultural heritage monuments, microbial biotechnological cleaning techniques, the role of bacterial fungal communities for the conservation of cultural heritage, and microbial enzymes and their potential applications as bioremediation agents. Written by internationally recognized experts, and providing up-to-date and detailed insights into microbial biotechnology approaches to cultural

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heritage monuments, the book is a valuable resource for biological scientists, especially microbiologists, microbial biotechnologists, biochemists and microbial biotechnologists.

Antimicrobials, Antibiotic Resistance, Antibiofilm Strategies and Activity Methods

Microorganisms for Sustainable Environment and Health

Structures and Architecture. A Viable Urban Perspective?

15th Triennial Conference, New Delhi,

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22-26 September 2008

PROCEEDINGS 4th International Congress on
"Science and Technology for the Safeguard
of Cultural Heritage in the Mediterranean
Basin" VOL. II

In Situ Conservation of Cultural Heritage
Conservation of Cultural Heritage covers the
methods and practices needed for future museum
professionals who will be working in various
capacities with museum collections and artifacts. It
also assists current professionals in understanding
the complex decision-making processes that face

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conservators on a daily basis. The uniqueness of this book lies in correlating the aspects of material science and the behaviour of artifacts in a museum environment. It will be of special benefit to museum professionals not trained in conservation. Covering a broad range of topics that are key to sound conservation in the museum, *Conservation of Cultural Heritage* is an important tool for students and professionals alike in ensuring that best practice is followed in the preservation of important collections.

Prevention is an attempt to look into the future and

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have a positive influence on it – therefore it is one of the most important aspects in the area of collection care, the central, current field of applied research in conservation and restoration. With sustainability damage and loss are avoided, dangers averted and research conducted. Collection care is only successful, if the theory is appropriately implemented in museum practice.

Durability in plastics has been a cherished research objective. For those plastics, however, which may end up in litter or in landfills, durability is now considered by some as undesirable. One result has

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been plastics which will disintegrate when exposed to ultraviolet light with ultimate biodegradation postulated. This paper questions the principles on which this development is based and concludes that it will not solve any environmental problems, and it is not a conservation measure.

Microbial Biodegradation and Bioremediation: Techniques and Case Studies for Environmental Pollution, Second Edition describes the successful application of microbes and their derivatives for bioremediation of potentially toxic and relatively novel compounds in the environment. Our natural

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biodiversity and environment is in danger due to the release of continuously emerging potential pollutants by anthropogenic activities. Though many attempts have been made to eradicate and remediate these noxious elements, thousands of xenobiotics of relatively new entities emerge every day, thus worsening the situation. Primitive microorganisms are highly adaptable to toxic environments, and can reduce the load of toxic elements by their successful transformation and remediation. This completely updated new edition presents many new technologies and techniques and includes theoretical

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context and case studies in every chapter. Microbial Biodegradation and Bioremediation: Techniques and Case Studies for Environmental Pollution, Second Edition serves as a single-source reference and encompasses all categories of pollutants and their applications in a convenient, comprehensive format for researchers in environmental science and engineering, pollution, environmental microbiology, and biotechnology. Describes many novel approaches of microbial bioremediation including genetic engineering, metagenomics, microbial fuel cell technology, biosurfactants and biofilm-based

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bioremediation Introduces relatively new hazardous elements and their bioremediation practices including oil spills, military waste water, greenhouse gases, polythene wastes, and more Provides the most advanced techniques in the field of bioremediation, including insilico approach, microbes as pollution indicators, use of bioreactors, techniques of pollution monitoring, and more Completely updated and expanded to include topics and techniques such as genetically engineered bacteria, environmental health, nanoremediation, heavy metals, contaminant transport, and in situ and

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ex situ methods Includes theoretical context and case studies within each chapter

Microbial Biodegradation and Bioremediation

An Overview of Current Research

Breakthroughs in Research and Practice

Public, Professionals and Preservation

Ionic Liquids

Stone Conservation

The world's monuments, art objects and archeology are at increasing risk of deterioration from environmental threats e.g. climate change, air pollution, and tourism. Microorganisms play a

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central role in these deterioration processes. They grow both on the surface and in the interiors of many materials. Our understanding of the role that the microbial community plays in these activities has improved significantly in recent years and a deeper understanding of the mechanisms of degradation is now possible. In addition, new tools have opened the door to the use of bacteria as protective agents. In this book, contributors have focused on the essential role that biodeterioration plays in both the deterioration and preservation of a wide range of materials. The volume brings together recent

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research by conservation microbiologists working in diverse environments. In addition, papers are included on the effects of microbial biofilms and climate change on the biodeterioration process. It is hoped that this book will prove helpful to microbiologists, chemists, and other scientists working in the field of conservation. It should also be useful to practicing conservators, and individuals in public policy concerned with the protection of our world's cultural heritage treasures. Contents: SECTION I - THE IMPACT OF THE ENVIRONMENT ON BIODETERIORATION AND PRESERVATION OF

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HERITAGE MATERIALS The Importance of Microbial Biofilms in Deterioration of Heritage Materials - Marc W. Mittleman Effects of Climate Change on the Biodeterioration of Historic Materials - Peter Brimblecombe SECTION II - BIODETERIORATION AND PRESERVATION PROCESSES Microbial Processes Involved in Deterioration of Paper and Parchment - Flavia Pinzari Biodeterioration of Photographic and Cinematographic Materials: Methods of Investigation - Domenico Pangallo Biodeterioration of easel paintings - An overview - A. Teresa Caldeira, Cátia Salvador, Tânia

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Rosado, and António Candeias Modern materials and contemporary art - Francesca Cappitelli and Federica Villa Use of dyes as a method to control textile biodeterioration - Barbara Blyskal Biodeterioration of paintings in caves, catacombs, and other hypogean sites - Clara Urzi, Laura Bruno, and Filomena De Leo Limestone Biodeterioration: Examples from Portugal - A.C. Pinheiro, N. Mesquita, and António Portugal Reasons for Removing Biological Materials from Calcareous Stone Monuments - Margaret Breuker and Joannie Bottkol.

First published in 1996, this volume has been

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substantially updated to reflect new research in the conservation of stone monuments, sculpture, and archaeological sites.

Biodegradation and Biodeterioration at the Nanoscale describes the biodegradation and biodeterioration of materials in the presence of nanomaterials. The book's chapters focus on the basic principles, action mechanisms and promising applications of advanced nanomaterials, along with their integration with biotechnological processes for controlled degradation and deterioration of materials. In addition, the current research indications,

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positive or negative environmental impacts, legislation and future directions are also discussed. This book is an important reference source for researchers, engineers and scientists working in environmental remediation, biotechnology, materials science, corrosion and nanotechnology. Provides detailed coverage on how nano-biomaterials degrade and deteriorate Compares how different types of bionanomaterials decompose Explains how the priorities of bionanomaterials affect their deterioration rate Despite the perception that artworks are timeless

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and unchanging, they are actually subject to biological attack from a variety of sources--from bacteria to fungi to insects. This groundbreaking volume, which publishes the proceedings of a conference held at The Metropolitan Museum of Art in 2002, explores how the development of these organisms can be arrested while preserving both the work of art and the health of the conservator. The richly illustrated text, containing the writings of over 40 scientists and conservators, is divided into sections on stone and mural paintings, paper, textiles, wood and archaeological materials, treatment and

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prevention, and special topics. The artworks and cultural properties discussed include, among many others, Paleolithic cave paintings, Tiffany drawings, huts built by early Antarctic explorers, and a collection of toothbrushes taken from Auschwitz victims.

Biotechnology and Conservation of Cultural Heritage

Pros and Cons of Biodegradation

Science, Technology and Cultural Heritage

Key Principles and Approaches

Science and Technology for the Conservation of Cultural Heritage

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Techniques and Case Studies for Environmental Pollution

This open access book offers a comprehensive overview of the role and potential of microorganisms in the degradation and preservation of cultural materials (e.g. stone, metals, graphic documents, textiles, paintings, glass, etc.). Microorganisms are a major cause of deterioration in cultural artefacts, both in the case of outdoor monuments and archaeological

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finds. This book covers the microorganisms involved in biodeterioration and control methods used to reduce their impact on cultural artefacts. Additionally, the reader will learn more about how microorganisms can be used for the preservation and protection of cultural artefacts through bio-based and eco-friendly materials. New avenues for developing methods and materials for the conservation of cultural artefacts

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are discussed, together with concrete advances in terms of sustainability, effectiveness and toxicity, making the book essential reading for anyone interested in microbiology and the preservation of cultural heritage. This report is the result of a three-year research program. It describes the chemical character of cellulose ethers as a general class of polymers and establishes an approximate ranking of the relative stability of each generic

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chemical subclass. Ranking the thermal stability of the polymers with respect to color change and loss in degree of polymerization led to the conclusion that as generic chemical classes, methylcellulose and carboxymethylcellulose appear to be the most stable of the cellulose ethers. Water-soluble ethylhydroxyethylcellulose apparently also possesses good stability. Of questionable long-term stability are

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hydroxyethylcellulose and hydroxypropylcellulose. Ethylcellulose and organic-soluble ethylhydroxyethylcellulose proved to be of poor stability, potentially undergoing marked changes in twenty years or less under normal museum conditions. An important additional conclusion reached here, as well as in an earlier investigation, is that considerable variations in stability can occur within a generic chemical

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class from differences in the basic raw material, a natural product from plants, which is not a uniform, manufactured, chemical substance.

Further variations can exist due to different manufacturing processes or commercial sources. Hence, commercial products must be evaluated individually to determine the most stable of a given generic type. Nonetheless, the authors believe the conclusions expressed here to be valid with regard to the relative

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stability of the generic chemical classes of cellulose ethers.

This book provides a basic understanding of waste management problems and issues faced by modern society. Scientific, technical, and environmental principles are emphasized to illustrate the processes of municipal and industrial solid wastes and liquid wastes, and the nature of impacts resulting from waste dispersal and disposal in the environment.

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Economic, social, legal, and political aspects of waste management are also addressed. Environmental issues and concerns receive thorough coverage in discussing waste reduction, resource recovery, and efficient and practical waste disposal systems. Other specific topics include recycling, physical and chemical processing, the biological treatment of waste solids, incineration, pyrolysis, and energy recover, hazardous wastes, and landfill

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management. The role of government and other institutions in waste management and resource recovery matters is also detailed. Discussion questions, worked examples, and end-of-chapter problems reinforce important concepts. Waste Management and Resource Recovery is particularly suitable as a text in waste management courses in environmental science or engineering programs. It also works well as a reference for practitioners in the

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waste management field.

Examines the application of scientific methods to the study and conservation of art and cultural properties. This work addresses scientific topics of broad interest, cutting across the boundaries of traditional disciplines and attracting up to 250 leading researchers in the field.

*Waste Management and Resource Recovery
Of Microbes and Art
Biodeterioration and Biodegradation 9*

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Problems and Solutions : Policy Perspectives

Uses of Ionizing Radiation for Tangible Cultural Heritage Conservation

An Advanced Treatise

Structures and Architecture. A Viable Urban Perspective? contains extended abstracts of the research papers and prototype submissions presented at the Fifth International Conference on Structures and Architecture (ICSA2022, Aalborg, Denmark, 6-8 July 2022). The book (578 pages) also includes a USB with the full texts of the papers (1448

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pages). The contributions on creative and scientific aspects in the conception and construction of structures as architecture, and on the role of advanced digital-, industrial- and craft -based technologies in this matter represent a critical blend of scientific, technical, and practical novelties in both fields. Hence, as part of the proceedings series Structures and Architecture, the volume adds to a continuous exploration and development of the synergetic potentials of the fields of Structures and Architecture. With each volume further challenging the conditions, problems, and potentials related to

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the art, practice, and theory of teaching, researching, designing, and building structures as vehicles towards a viable architecture of the urban environment. The volumes of the series appear once every three years, in tandem with the conferences organized by the International Association of Structures and Architecture and are intended for a global readership of researchers, practitioners, and students, including architects, structural and construction engineers, builders and building consultants, constructors, material suppliers, planners, urban designers, anthropologists,

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economists, sociologists, artists, product manufacturers, and other professionals involved in the design and realization of architectural, structural, and infrastructural projects.

The Book Will Be Helpful Students, Custodians Of Records, Librarians, Archivists, Conservationists, Conservation Scientists, Experts Of The Field And Those Who Are Interested To Learn And Practice Conservation In The Real Sense.

The Fungi: An Advanced Treatise, Volume III: The Fungal Population attempts to relate fungi to their environment as symbionts, saprobes, and parasites.

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This book discusses the effects of the interaction of fungi with their environment, and the summation of these effects as reflected in the geographical distribution and number of fungi is described. Organized into eight parts encompassing 27 chapters, this volume begins with an overview of the ecology of fungi. This text then examines the taxonomy, morphology, and physiology of freshwater fungi. Other chapters consider the ecology of marine, saprobic fungi that falls into three categories, namely, ecological distribution, geographical distribution, and occurrence and habitat. This book

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discusses as well the characteristics and temperature ranges for growth of each of the known species of thermophilic fungi. The final chapter deals with the importance of the major characteristics of fungi. This book is a valuable resource for mycologists, botanists, paleobotanists, and taxonomists.

Microbial defacement and degradation of artistic or historic artifacts is a worldwide problem affecting all countries regardless of their history, geographical location, or economic conditions. This is the first comprehensive study of the role of microbial

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colonization on the degradation of different cultural artifacts (from buildings to books, wall paintings, textiles, sculptures and glass) and of the investigations into the compounds utilized to control microbial invasion. The book focuses on three main areas: the identification of the microorganisms which cause structural damage; methods to reduce or prevent microbial colonization and damage; and the use of microorganisms for the protection and bioremediation of cultural artifacts.

Handbook of Material Biodegradation,
Biodeterioration, and Biostabilization

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Preservation of Surfactant Formulations

Cellulose Nitrate in Conservation

Modern Techniques in Conservation and Analysis

Conservation of Documents

Microorganisms in the Deterioration and

Preservation of Cultural Heritage