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

Despite the perception that artworks are timeless 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 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.

Environmental Mycology in Public Health

Biodiversity of Fungi

Exposure to Microbiological Agents in Indoor and Occupational Environments

Book chapters from the 6th International Symposium on Occupation Safety and Hygiene (SHO 2018), March 26-27, 2018, Guimarões, Portugal

Encyclopedia of Astrobiology

Organisms and Decay Mechanisms in Aquatic and Terrestrial Ecosystems

The Atlas of Climate Change Impact on European Cultural Heritage

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Cyanobacteria have existed for 3.5 billion years, yet they are still the most important photosynthetic organisms on the planet for cycling carbon and nitrogen. The ecosystems where they have key roles range from the warmer oceans to many Antarctic sites. They also include dense nuisance growths in nutrient-rich lakes and nitrogen-fixers which aid the fertility of rice-fields and many soils, especially the biological soil crusts of arid regions. Molecular biology has in recent years provided major advances in our understanding of cyanobacterial ecology. Perhaps for more than any other group of organisms, it is possible to see how the ecology, physiology, biochemistry, ultrastructure and molecular biology interact. This all helps to deal with practical problems such as the control of nuisance blooms and the use of cyanobacterial inocula to manage semi-desert soils. Large-scale culture of several organisms, especially "Spirulina" (Arthrospira), for health food and specialist products is increasingly being expanded for a much wider range of uses. In view of their probable contribution to past oil deposits, much attention is currently focused on their potential as a source of biofuel. Please visit <http://extras.springer.com/> to view Extra Materials belonging to this volume. This book complements the highly successful Ecology of Cyanobacteria and integrates the discoveries of the past twelve years with the older literature.

Brings together wide-ranging scientific contributions from those who have studied the biological degradation of cultural heritages. It tackles both general topics (mechanisms of biodeterioration; correlation between biodeterioration and environment; and destructive organisms) and specific ones (the problems presented by different materials, environments, climatic conditions, and geographic settings). The contributors also discuss ways to diagnose, prevent, and control deterioration.

Molecular Biology and Cultural Heritage

Fundamental Studies in Conservation Science

Life Cycles and Effects on Air Quality and Climate

Cultural Heritage Microbiology

Heritage Microbiology and Science

Microbial Biotechnology Approaches to Monuments of Cultural Heritage

Occupational Safety and Hygiene VI

Environmental stress caused by water continuously exposes buildings to microbial colonization. This is highly evident when both minor dampness and mass flooding occur. The text describes how microbiological corrosion of buildings and the structures and substances derived from these hazards are responsible for adverse health effects on people exposed to these contaminated environments. Microbiological Corrosion of Buildings: A Guide to Detection, Health Hazards, and Mitigation describes the key elements and methods for neutralising and removing microbiological contamination, and the operating algorithm for checking the effectiveness of preventative solutions. Ideal for construction engineers, microbiologists and professionals in the field. Features: Latest methods for detection of indoor microbial hazards Identifies the tools needed for natural, non-destructive and non-invasive methods of bio-corrosion removal Describes the social and health problems associated with exposure to microbiological hazards Provides case studies and examples of microorganisms responsible for microbial corrosion. 'Climate change and the associated adverse effects, such as floods and whirlwinds, make the problem of microbiological corrosion of buildings that generates health risks and economic losses on a global scale, the focus of science and technology. The monograph presents a complex problem of building bio-corrosion, that requires knowledge of the distant fields of microbiology and building technology, for the use of both scientists and practitioners. This pioneering work of an interdisciplinary nature harmoniously combines knowledge on specific microbiological issues relating to the process of bio-corrosion and the associated health risks with detailed issues of construction technology concerning the prevention of bio-corrosion and its removal. The authors succeeded in combining a very high scientific level in the monograph with an accessible and understandable presentation of complex problems. The extensive references, ranging from "classical" items from many years ago to the most recent articles presenting the state of the art in this field, are worth emphasising.' —Prof. Jacek Dutkiewicz, Ph.D., D.Sc., Institute of Rural Health in Lublin

Palynology finds applications in various fields. Some of them are taxonomy, plant evolution, plant breeding programmes, biotechnology, microbiology of water, soil and air, the pharmaceutical industry, cosmetic industry, energy food industry, forensic science, aerobiology, allergy, epidemiology, meteorology, fossil fuel exploration and biodiversity.

The Quality of Air discusses the topic from both the environmental and human health points-of-view. As today's policymakers, academic, government, industrial researchers, and the general public are all concerned about air pollution in both indoor and outdoor scenarios, this book presents the advances in the analytical tools available for air quality control within social, political, and legal frameworks. With its multi-author approach, there is a wide range of expertise in tackling the topic. Addresses real scenarios of polluted sites Presents updates of the available methodologies for the quality control of indoor and outdoor air Includes evaluations of working scenarios in different fields as mandated by regulations

Cultural Heritage and AerobiologyMethods and Measurement Techniques for Biodeterioration MonitoringSpringer Science & Business Media

New Mechanisms and Strategies

Biodeterioration of Works of Art

Museums, libraries and archives

Ecology of Cyanobacteria II

Applications and Development

Management of Decay and Health in Buildings

Allergy and Allergen Immunotherapy

' The Atlas of Climate Change Impact on European Cultural Heritage ' aims to reveal the links between climate science and the potential damage to our material heritage. While the vulnerability atlas shows overall patterns of threat, greater detail about the scientific basis of the project can be found in the appendices, which give some background to the underlying science.

Fungi are the largest group among living organisms after insects. The total fungal species is estimated to be 1.5 million, of which 72,000 have been reported and ~1500 are added every year. Fungi are used in various biotechnological applications such as in the pharmaceutical and agrochemical industries, in bioremediation, biological control, as natural scavengers, for recycling of elements, dyes, etc. This book attempts to cover the various aspects of fungi. This book will add substantially to the knowledge of fungal diversity and its applications in specific areas and bring the information under one umbrella.

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 Competitively dedicated to the creation of a network which integrates CSIC and University groups, private 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 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 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.

Aerobiology is the study of airborne particles that have an impact on humans and other organisms. Every day, we are exposed to airborne particles, including "natural" particles such as pollen, bacteria, and fungi, and "unnatural" particles, such as asbestos fibers and noxious chemicals.

Aerobiology highlights the current interests in this field, primarily the ecology and distribution of airborne particles and their effects on health.

Cultural Heritage and Aerobiology

Biotechnology and Conservation of Cultural Heritage

Microclimate for Cultural Heritage

Applications with Special Emphasis on Aerobiology and Allergy

Their Role in Human Life

Science and Technology for the Conservation of Cultural Heritage

Aerobiology

This book is published open access under a CC BY 4.0 license. Over the past decades, rapid developments in digital and sensing technologies, such as the Cloud, Web and Internet of Things, have dramatically changed the way we live and work. The digital transformation is revolutionizing our ability to monitor our planet and transforming the way we access, process and exploit Earth Observation data from satellites. This book reviews these megatrends and their implications for the Earth Observation community as well as the wider data economy. It provides insight into new paradigms of Open Science and Innovation applied to space data, which are characterized by openness, access to large volume of complex data, wide availability of new community tools, new techniques for big data analytics such as Artificial Intelligence, unprecedented level of computing power, and new types of collaboration among researchers, innovators, entrepreneurs and citizen scientists. In addition, this book aims to provide readers with some reflections on the future of Earth Observation, highlighting through a series of use cases not just the new opportunities created by the New Space revolution, but also the new challenges that must be addressed in order to make the most of the large volume of complex and diverse data delivered by the new generation of satellites.

Environmental Mycology in Public Health: Fungi and Mycotoxins Risk Assessment and Management provides the most updated information on fungi, an essential element in the survival of our global ecology that can also pose a significant threat to the health of occupants when they are present in buildings. As the exposure to fungi in homes is a significant risk factor for a number of respiratory symptoms, including allergies and hypersensitivity pneumonitis, this book presents information on fungi and their disease agents, important aspects of exposure assessment, and their impacts on health. This book answers the hard questions, including, "How does one detect and measure the presence of indoor fungi?" and "What is an acceptable level of indoor fungi?" It then examines how we relate this information to human health problems. Provides unique new insights on fungi and their metabolites detection in the environmental and occupational settings Presents new information that is enriched by significant cases studies Multi-contributed work, edited by a proficient team in medical and environmental mycology with different individual expertise Guides the readers in the implementation of preventive and protective measures regarding exposure to fungi

"Risk Management in the Cultural Heritage Sector: Museums, Libraries, Archives" is the second volume in the Book Series "Education and Research in the Sector of Cultural and Environmental Heritage". Its contents can be traced preliminarily to a historical overview of the regulatory situation regarding the safety of cultural heritage in Italy and internationally, with a consequent discussion of procedures for evaluation and prevention, guidelines and security systems, in particular, in confined environments. Attention then focuses on the various types of risk and relevant scientific methodologies, comparing methodological paths and monitoring standards established by Italian and International Organisations. A number of case studies carried out by the Diagnostic Laboratory for Cultural Heritage of the Department of Cultural Heritage at the Alma Mater Studiorum University of Bologna are examined.

Handbook of Modern Coating Technologies: Application and Development reviews recent applications and developments of modern coating technologies. The topics in this volume consist of role of antibacterial coatings in the development of biomaterials, insights of technologies for self-healing organic coatings, sensor applications, application of carbon nanotubes-based coating in the field of art conservation, oxide-based self-cleaning and corrosion-protective coatings, protective coatings for wood, applications of optical coatings on spectral selective structures, application of natural antimicrobial coating for controlling foodborne pathogens on meat and fresh produce, efficacy of antimicrobial coating in reducing pathogens on meat, composite membrane: fabrication, characterization, and applications, development of nanostructured HVOF coatings on high strength steel components for turbine blades, nanoscale multilayered composite coating, applications of sol-gel coatings, application of graphene in protective coating industry, application of coatings in outdoor high-voltage installations, defects and doping effects in thin films of transparent and conductive oxides, and functional coatings for lab-on-a-chip systems based on phospholipid polymers.

Their Diversity in Space and Time