



**ELSEVIER**

## **Announcement of New Book**

### **Nature-derived Sensors**

#### Invitation Letter and Guidelines

The renowned Elsevier Publishing has bestowed upon us the responsibility to edit a book titled: “Nature-derived Sensors: Basic Principles and Recent Advances”. We propose this edited book to give a general and wide overview of the science and technology of nature-inspired sensors to the scientific and industrial communities. Topics presented in this book will present recent advances and applications of biomimetics science through the fabrication and design of sensors. The book will begin with an introductory section dealing with fundamental and basic information about biomimetic mechanisms, materials, algorithms, and tools. In further detail, various classes of nature-inspired sensors will be discussed. This book will bring together a wide range of information from nature-inspired solutions for modern sensor technology. As a result of the demand for low-cost, high-quality, and smart sensors, scientists will face new challenges that can be resolved by learning from nature solutions.

We are currently inviting world-class researchers and experts in the field to contribute their expertise with a chapter, to properly highlight the discipline and to compile a timely reference work.



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## Submission procedure

**ELSEVIER**

### **Abstract submission** *(Due 15-July 2023)*

-Abstract submission to the editors by email

(Title, Authors, Affiliations, Abstract 100-150 words, 5-10 keywords, and Table of Contents (Titles, and subtitles only))

-Reviewing the Chapter(s) Abstract and TOC: 15-30 days after 2-page proposal submission

### **Full Manuscript submission** *(Due 1-October 2023)*

- Title of the chapter

- A brief introduction and topic overview of your specific topic: short Abstract (100-150 words), Introduction (2-3 Pages), other titles, future prospective, conclusion

- Total Number of Words 10000-16000 Words

- Number of high-resolution Figures 5-10 highlighting the main issues of the chapter

- Number of tables 2-3 summarizing the state of the art in the chapter topic

- Reference Format: By Mendeley (Authors, title, Volume, Pages, Year)

### **Important information**

- The submitted manuscripts will be checked by Plagiarism Detection Software.

- Permission for reusing Figures and Tables must be submitted with your final manuscript.

- After the approval of abstract, authors will have access to the Elsevier's enhanced online authoring platform (Elsa system). It is imperative that you write your manuscript on the Elsa platform.

### **Benefits for Contributors**

- Publication of the chapters will be free of charge.

- Accepted/Published chapters will be indexed by Scopus and Web of Science.

- Senior contributor of each chapter will get one electronic copy of the Work, free of charge.



## **Choosing the Title of Your Chapter**

Contributors can choose the chapter title from the following topics:

### **Chapter Titles with Tentative Content**

#### **Chapter 1: Introduction: Nature as an Inspiration Source**

An introductory chapter highlighting the overall content and relevance of the book

Benefits from bio inspiration

Bioinspired methods

Bioinspired algorithms

Bioinspired sensors

Sensors for Human Five Senses

#### **Chapter 2: Fundamentals of Biomimetic Sensor Technology**

Overview of important functions considered by nature

Intrinsic sensing in plants, animals, and human

Historical overview of direct and artificial mimicry of nature in sensing devices

Introduction and classification of biomimetics sensing elements

#### **Chapter 3: Biomimetic Materials and Biomimetic Approaches in Micro/Nano-Structural Fabrications & Functionalization**

Biomimetic approaches in micro/nano-structural fabrications

Nature-inspired surfaces and substrates

functionalization of biomimetic materials with other functional nanoscale building blocks, such as

nanofibers, nanowires, 2D materials, and others

#### **Chapter 4: Nature-Inspired Algorithms in Sensing Technology**

Introduction to nature-inspired algorithms

Classification of nature-inspired algorithms

Application of nature-inspired algorithms in processing sensory data

Sensing technologies developed based on nature-inspired algorithms

#### **Chapter 5: Nature-based Chemical Sensors**

Review of nature-inspired chemical sensors for enabling fast, sensitive, low-cost diagnostics.

Biomimetic sensing materials and transduction techniques will be discussed

#### **Chapter 6: Optical & Electronic Nose and Tongue**

Introduction to e-nose/tongue systems

Structural colors and indicators in nature,

Color sensor array for multi-analyte discrimination



Analytic sensors for discrimination and pattern recognition of variety of odors, and different species  
Their applications in food and beverages industries, pharmaceutical and health industries

### **Chapter 7: Biodegradable and sustainable Sensors; material and applications**

Current state and future prospects of materials, fabrication, and applications of biodegradable biosensors and implantable sensors, ecological monitoring, disease detection, sustainability in sensor design, green materials-based sensors

### **Chapter 8: Biomimetic Strategies for Biosensing**

Fundamental of biosensing technology  
Biomimetic biosensors  
Biosensors based on artificial enzymes  
Molecular Imprinting  
Biomimetic mechanism  
Biofunctionalization strategies  
Membrane-Mimicking Biosensors

### **Chapter 9: Wearable Biomimetic Sensors**

Biomimetic flexible physical sensors, self-adhesive structures, stretchable electronic skins, textile-based sensors, etc.  
Challenges and future outlook of bio-integrated wearable sensors

### **Chapter 10: Bioinspired MEMS/NEMS Sensors**

Designing advanced MEMS/NEMS with structure and functions of biomimetic concept  
MEMS/NEMS that incorporate natural biological structures and biological species

### **Chapter 11: Sensing in Organ-on-Chip Devices**

Fabrication and miniaturization of biomimetic sensors for organ-on-chip devices

### **Chapter 12: Ecosystem Creatures as Sensors**

Plants and animals as sensors for advancing ecological understanding  
Mobile animal sensors for monitoring our planet  
Gene-editing of plants for reporting the presence of chemicals and pathogens on land

### **Chapter 13: Physical sensors**

Clever adaptations to achieve hearing in insects, acoustic properties of spider silk, underwater acoustic communication of dolphins and so many other examples can be discovered and used for fabrication of new generation of acoustic sensors  
Mechanism of biosensors in mechanical detection can be used for designing industrial sensor



Nature-inspired self-sensing materials with tunable physical properties  
An artificial version of a spider sensor as a new mechanical sensor.  
Nature-inspired smart architectures are used in the design of smart materials with high-performance mechanical stimuli response  
Biocompatible temperature sensors inspired by skin  
Infrared thermal sensors inspired by snakes and insects  
Nature-Inspired deformable structures as temperature sensors

### **Chapter 14: Intelligent Sensors: Wireless Sensor Networks and Internet of Things**

Nature-Inspired evolutionary algorithms for modeling in IoT and sensor networks  
Sensors in robotics  
Applications to smart systems and telemedicine

### **Chapter 15: Aerospace Sensors**

Birds Inspire Flight Sensor  
Sensors in aerospace engineering  
Bio-inspired sensing and control for aerial vehicles

### **Contact US:**

If you have any question, please feel free to contact!

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Subject: Nature-derived Sensors/Question

Main Text: Authors, Title of the Chapter, Your Question

Best wishes!

Editorial Board