

2024

# ISOBC NEWSLETTER

Volume 19, Number 3



**ISOBC Newsletter**

November 2024

Volume 19, Number 3

**Iran Society of Biophysical Chemistry**

# ISOBC NEWSLETTER

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## اولین همایش بیوشیمی و بیوفیزیک بینایی ایران

۷ اسفند ۱۴۰۳

First Iran's Conference on Biochemistry and Biophysics of Vision

25 February 2025

محورها

✓ سازوکارهای مولکولی بینایی  
✓ زیست‌شناسی ساختاری پروتئین‌های بینایی  
✓ تکنیک‌های بیوفیزیک در تحقیقات بینایی  
✓ مسیرهای متابولیک در سلامت شبکیه  
✓ ژنتیک و زیست‌شناسی مولکولی بینایی  
✓ نوروبیولوژی بینایی  
✓ پاتوفیزیولوژی اختلالات بینایی  
✓ نوآوری‌ها در علم بینایی  
✓ بینایی و تعاملات محیطی  
✓ پژوهش‌های ترجمانی در علم بینایی

**مهلت ارسال چکیده مقالات ۲۵ دی ماه ۱۴۰۳**  
**ibbv1.ut.ac.ir**

برگزارکنندگان



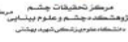
تلفن دبیرخانه

۰۲۱-۶۱۱۱۳۳۸۱



محل برگزاری

دانشگاه تهران - مرکز تحقیقات بیوشیمی و بیوفیزیک



- Molecular Mechanisms of Vision
- Structural Biology of Vision Proteins
- Biophysical Techniques in Vision Research
- Metabolic Pathways in Retinal Health
- Genetics and Molecular Biology of Vision
- Neurobiology of Vision
- Pathophysiology of Vision Disorders
- Innovations in Vision Science
- Vision and Environmental Interactions
- Translational Research in Vision Science

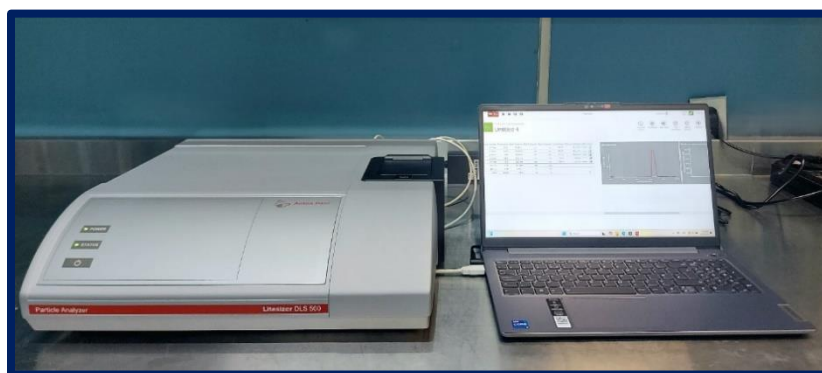
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## Dynamic Light Scattering Installation at the Institute of Biochemistry and Biophysics

The Litesizer DLS 500 was installed at the Institute of Biochemistry and Biophysics (IBB), University of Tehran, on November 6, 2024 (1403 A.H.). This advanced instrument by Anton Paar manufactures is utilized for:

1. Particle size and distribution analysis: Measuring hydrodynamic diameter and polydispersity index parameters for particles ranging from 0.3 nm to 10  $\mu\text{m}$  using the Dynamic Light Scattering (DLS) method.
2. Stability analysis of emulsion and suspensions: includes three measurement angles that determine the zeta potential using Electrophoretic Light Scattering (ELS).
3. Protein molecular mass determination: Measuring molecular masses of proteins up to 20 MDa using Static Light Scattering (SLS).
4. Monitoring sedimentation and aggregation: Utilizing light permeability to assess transmittance and automatic angle selection.
5. Input parameter optimization for DLS and ELS: Providing refractive index values based on focus-dependent scattering intensity.



The Litesizer DLS 500 supports research across various fields, including pharmaceuticals and life sciences, chemicals, food and beverage, electronics, environmental studies, and pulp and paper.

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## Definition of Precise Science in Today's World

Prepared by **Fatemeh Abdolazimi**

M.S. Student in Biophysics  
Institute of Biochemistry and Biophysics (IBB)  
University of Tehran

**Precise Science** is a cornerstone of modern knowledge, aiming to interpret and organize the world around us. By employing precise measurements, mathematical principles, and empirical methods, it strives to gain a deeper understanding of nature's laws and structures.

A hallmark of precise science is its emphasis on empirical measurements and quantifiable data. This methodology enables scientists to obtain results that can be verified through reproducibility and independent testing. By providing a robust framework for analysis, precise science has helped society develop a better understanding of natural phenomena and utilize this knowledge to improve the quality of life.

However, precise science has its limitations. It faces challenges when interpreting highly complex and unknown phenomena that are beyond the reach of our current senses and instruments. Some of the fundamental principles of precise science, such as physical models and scientific assumptions, may change or improve over time due to the dynamic and evolving nature of knowledge. This means that precise science is constantly seeking evolution and new pathways to further understanding.

Therefore, precise science is not merely a tool for understanding the world but also a dynamic process of change and improvement. This characteristic allows scientists to continually pursue new questions and push the boundaries of knowledge. This not only leads to technological development and improved living conditions but also contributes to a deeper understanding of science by scientist.

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## What are Trend Journals?

**Prepared by Aida Mehdipour**

M.S. Student in Biophysics  
Institute of Biochemistry and Biophysics (IBB)  
University of Tehran

### **Origin and Evolution:**

Trend journals typically originated as specialized publications focused on current developments in specific scientific fields. They were established to keep researchers updated on the latest advancements in their disciplines. Historically, the "Trends in..." series started in the 1980s with Trends in Biochemical Sciences, published by Elsevier, as one of the first in this format. They set a precedent for high-quality review journals dedicated to summarizing and discussing recent scientific progress.

### **Affiliated Publisher and Series:**

Trend journals are predominantly published under the Cell Press and Elsevier umbrella, with each journal specifically dedicated to a particular field of science, medicine, or technology. The "Trends" series has grown to cover a broad range of disciplines, becoming a primary source for review articles.

These journals are continually expanding into emerging fields. Currently, there are over 20 journals in the series, each focusing on a specialized domain.

### **Impact Factor and Influence:**

Trend journals generally hold high impact factors, reflecting their influence in the scientific community. They often have significant citation metrics due to their focus on state-of-the-art reviews, which are widely referenced in academic research. Their impact factor varies depending on the field, with some reaching impact factors above 20, especially in highly cited fields like neuroscience and biomedicine.

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**Categories and Subjects Covered: Trend journals cover diverse scientific categories:**

<b>Title</b>	<b>Impact factor 2022</b>
Trends in Biochemical Sciences	13.8
Trends in Biotechnology	17.8
Trends in Cancer	18.4
Trends in Cell Biology	19.0
Trends in Chemistry	15.7
Trends in Cognitive Sciences	19.9
Trends in Ecology & Evolution	16.8
Trends in Endocrinology and Metabolism	10.9
Trends in Genetics	11.4
Trends in Immunology (formerly Immunology Today)	16.8
Trends in Microbiology	15.9
Trends in Molecular Medicine (formerly Molecular Medicine Today)	13.6
Trends in Neurosciences	15.9
Trends in Parasitology (formerly Parasitology Today)	9.6
Trends in Pharmacological Sciences	13.8
Trends in Plant Science	20.5

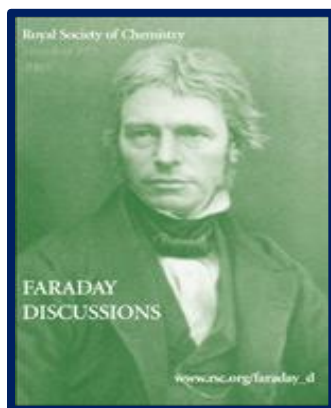
## References:

1. Elsevier. (n.d.). Trends journals. 2024, from <https://www.elsevier.com/journals>
2. [www.eurekalert.org/news-releases/485035](http://www.eurekalert.org/news-releases/485035)
3. Journal Citation Reports (Science ed.). Clarivate Analytics. 2023

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## Faraday Discussions



Faraday Discussions is a scientific journal that publishes original research papers presented at a series of long-running conferences on physical chemistry, chemical physics, and biophysical chemistry. It also includes a detailed report of the discussions and comments made during the meetings. Established in 1947 by the Faraday Society, a group dedicated to advancing physical chemistry. Named in honor of Michael Faraday, a pioneering scientist whose work laid the foundation for much of modern chemistry and physics, particularly in electromagnetism and electrochemistry. Originally, the journal was published by the Faraday Society. Since the merger of the Faraday Society with the Royal Society of Chemistry (RSC), the journal has been published under the RSC. Between 1972 and 1991, it was known as Faraday Discussions of the Chemical Society. Traditionally, three Faraday Discussions were held annually, but since 2014, approximately eight conferences (and corresponding journal issues) have been published each year. The journal was created as a platform for in-depth scientific exchange, emphasizing open discussion and debate about contemporary issues in chemistry. The aim was to foster collaboration and challenge ideas in an interactive environment. **Faraday Discussions has become a prestigious journal that blends rigorous science with the interactive spirit of scientific inquiry.** Currently, the journal has an impact factor of 4.3. Faraday articles must contain new, original, and unpublished research. Papers are distributed to all participants before the conference, where most of the meeting is dedicated to discussing the work. The final publication includes a fully cited record of the discussions, including comments, questions, and responses, published alongside the original papers in the final volume. Faraday Discussions is a hybrid (transformative) journal, that allows authors to publish their work through the traditional subscription model or via an open-access option.

Originally focused on classical physical chemistry topics such as spectroscopy, thermodynamics, and electrochemistry. Over time, the scope expanded to include modern interdisciplinary research, such as nanotechnology, materials science, biophysics, and sustainable chemistry.

### Reference:

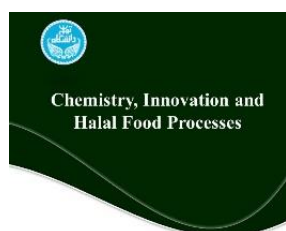
1. <https://www.rsc.org/journals-books-databases/about-journals/faraday-discussions/>



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## New books



Authors:

Ali A. Moosavi-Movahedi  
Maryam Moslehshad  
Dina Alhoeei  
Maryam Salami

**Book: Chemistry, Innovation and Halal Food Processes**

**Edited by: Ali A. Moosavi-Movahedi, M. Moslehi Shad, D. Alhoee, M. Salami**

**Publisher: University of Tehran Press**

**Language: Persian**

**ISBN: 978-964-03-7548-8**

**Published date: 2024**

Today, with the increase in health concerns among the people of the world, the Halal food business has a high capacity. The concept of Halal indicates the health, cleanliness, and quality of consumed food, which improves the health of consumers. Therefore, knowing the science and knowledge of Halal products and the chemistry of Halal compounds are very important. The present book under the title "**Chemistry, Innovation and Halal Food Processes**" is the result of the research and experience of the authors, it was written in Persian language, which includes materials about science of Halal products, standards, how to obtain Halal logo certificate, the Chemistry of Halal compounds, Halal food products, laboratory methods for approving Halal products and the supply chain of Halal super food products.

This book can provide useful information to the producers of all kinds of Halal food products. By writing this book, a step will be taken to get familiar with the science of Halal food products, quality and health lifestyle, and the process of obtaining a Halal license.

The chapters of this book are as follows:

- Business practices and trading of Halal products
- The Halal standard and the procedures for issuing and receiving the Halal certificate
- Halal and non-Halal additives
- Fermented food products and Halal production process
- Rules related to Halal slaughter and its effects on meat quality
- Laboratory methods for approving Halal products
- The supply chain of Halal food products

Today, Halal products are included under science and many books have been written about the science of Halal products at the international level, and various committees have been formed to review halal products in other countries, and each has its own Halal logo. Hope this book will

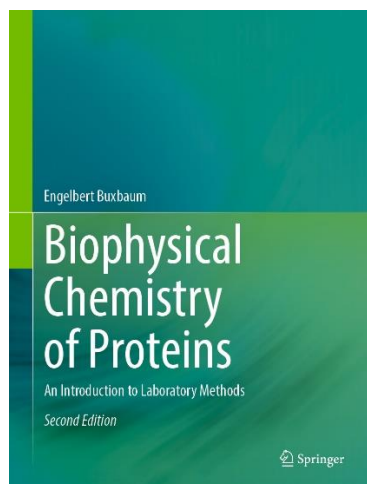


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answer part of the questions of students of food science and technology, biochemistry and food biophysics, and specialists, researchers and industrialists will benefit from it.



**Book: Biophysical Chemistry of Proteins**

**Author: Engelbert Buxbaum**

**Publisher: Springer**

**Language: English**

**ISBN: 978-1-0716-4123-1**

**Published date:2025**

This textbook, designed for all scientists interested in protein research, provides a thorough overview of laboratory methods for the biophysical chemistry of proteins. This new edition, completely restructured and expanded for ease of learning, includes sections on analytical techniques, working with proteins, protein size and shape, protein structure, enzyme kinetics, industry enzymology, and a new section on special statistics.

- Focuses on the biophysical chemistry of proteins
- Presents an overview of the methods used in protein research
- Examines the possible applications and limitations of protein research

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<https://www.ebsa2025.org/>

**MOSBRI**  
Molecular-Scale Biophysics Research Infrastructure

**4<sup>th</sup> MOSBRI Scientific Conference**  
10<sup>th</sup>-13<sup>th</sup> June 2025, Institut Pasteur, Paris

<https://www.mosbri.eu/events/conferences/paris-2025/>

<https://event.fourwaves.com/bsc2024/pages>

<https://www.proteinsociety.org/annual-symposium>

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## Biophysicist in Profile Payam Arghavani



Institute of Biochemistry and Biophysics,  
University of Tehran, Tehran, Iran.  
Email: [payam.arghavani@ut.ac.ir](mailto:payam.arghavani@ut.ac.ir)

### 1-What is your view about your membership in Iran Society of Biophysical Chemistry (ISOBC)?

I am deeply honored to be a member of the Iran Society of Biophysical Chemistry (ISOBC). This membership not only recognizes my commitment to advancing biophysical chemistry but also provides invaluable opportunities to collaborate with fellow scientists in the fields of biophysics and biochemistry. Through ISOBC, I am able to engage in meaningful interactions, exchange ideas, and work on innovative projects that contribute to scientific progress and strengthen our community.

### 2-Would you please explain your biography sketch, University, and your CV including prizes?

I was born in Sanandaj, Iran, in 1988 and earned my school diploma from the National Organization for the Development of Exceptional Talents. My academic path includes a

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bachelor's degree in Plant Biology and a master's in Cellular and Molecular Biology. I completed my Ph.D. in Biophysics at the Institute of Biochemistry and Biophysics, University of Tehran, under the guidance of professor Moosavi-Movahedi where I focused on protein aggregation and the role of superparamagnetic nanoparticles (SPIONs) in this process. My research interests encompass protein folding, the design of amyloid-based biomaterials, and the therapeutic and diagnostic applications of nanomaterials. I have received support from both the Iran National Elites Foundation and the Iran National Science Foundation for my postdoctoral research and serve as a reviewer for scientific journals. I am honored to engage in collaborative research efforts and have been recognized with an approved cover art in *The Journal of Physical Chemistry B*.

### **3-Please let us know about your postdoc projects and your research achievements.**

In my postdoctoral research at the Institute of Biochemistry and Biophysics, University of Tehran, under the guidance of Professor Moosavi-Movahedi, I focus on developing amyloid-based nanomaterials and their applications in biophysics. My primary projects include creating amyloid-like aggregates from soy protein isolate (SPI) to assess their potential for antioxidant encapsulation<sup>1</sup> and Pickering emulsion stabilization. Additionally, I am investigating protein aggregation using microfluidic systems, designing nanoparticles responsive to external stimuli, and using mathematical models to analyze protein aggregation dynamics. Collaborative efforts, such as the NSFC-INSF Joint Research Program, further expand my work into studying natural antioxidant effects on stress-related diseases through nanoformulations.

Beyond my postdoctoral research, I have published significant research and review articles in esteemed journals, focusing on protein aggregation and its biophysical and biomedical implications. These publications examine protein misfolding mechanisms, the inhibition of peptide and protein aggregation, and the therapeutic promise of amyloid-based biomaterials. My contributions offer new insights into disease-related protein aggregates, explore nanotechnology's role in protein stabilization, and suggest novel therapeutic applications, aiming to deepen understanding of protein aggregation in theranostics.

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<sup>1</sup> Arghavani, P.; Behjati Hosseini, S.; Moosavi-Movahedi, F.; Karami, S.; Edrisi, M.; Azadi, M.; Azadarmaki, S.; Moosavi-Movahedi, A. A., In Situ Nanoencapsulation of Curcumin in Soy Protein Isolate Amyloid-like Aggregates for Enhanced Wound Healing. *ACS Applied Materials & Interfaces* **2024**. <https://doi.org/10.1021/acsami.4c06972>.

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### 4- What is your suggestion for promotion of relation for ISOBC members?

In my opinion by implementing these strategies, ISOBC can further strengthen its community, foster innovation, and advance the field of biophysical chemistry. some more suggestions as below:

#### 1. Mentorship Programs:

- **Formalized Mentorship:** Establish a structured mentorship program pairing experienced researchers with early-career scientists.
- **Peer Mentorship:** Encourage peer-to-peer mentoring within specific research areas or career stages.
- **Mentorship Workshops:** Organize workshops on effective mentorship practices to equip members with the necessary skills.

#### 2. Collaborative Research Initiatives:

- **Joint Research Projects:** Facilitate the formation of international research teams to tackle complex biophysical chemistry problems.
- **Shared Resource Platforms:** Create online platforms for sharing data, software, and experimental techniques.
- **Collaborative Grant Applications:** Encourage members to collaborate on joint grant proposals.

#### 3. Social and Networking Events:

- **Virtual Social Gatherings:** Organize virtual coffee breaks, happy hours, and social events to foster informal connections.
- **In-Person Conferences and Workshops:** Continue to organize in-person events, especially for early-career researchers to network and build relationships.
- **International Exchange Programs:** Support exchange programs for researchers to visit other laboratories and collaborate on projects.

#### 4. Digital Tools and Platforms:

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- **Social Media Engagement:** Utilize social media platforms like to share news, research highlights, and job opportunities.
- **Online Forums and Discussion Groups:** Create online forums for specific research topics or career-related discussions.
- **Virtual Reality and Augmented Reality:** Explore the use of VR and AR for virtual lab tours, collaborative experiments, and remote conferences.

### 5. Outreach and Public Engagement:

- **Public Lectures and Science Cafés:** Organize public outreach events to share the excitement of biophysical chemistry with a wider audience.
- **Science Communication Workshops:** Provide training to researchers on effective science communication skills.
- **Collaborations with Industry:** Foster collaborations with industry partners to bridge the gap between academia and industry.

### 6. Diversity and Inclusion:

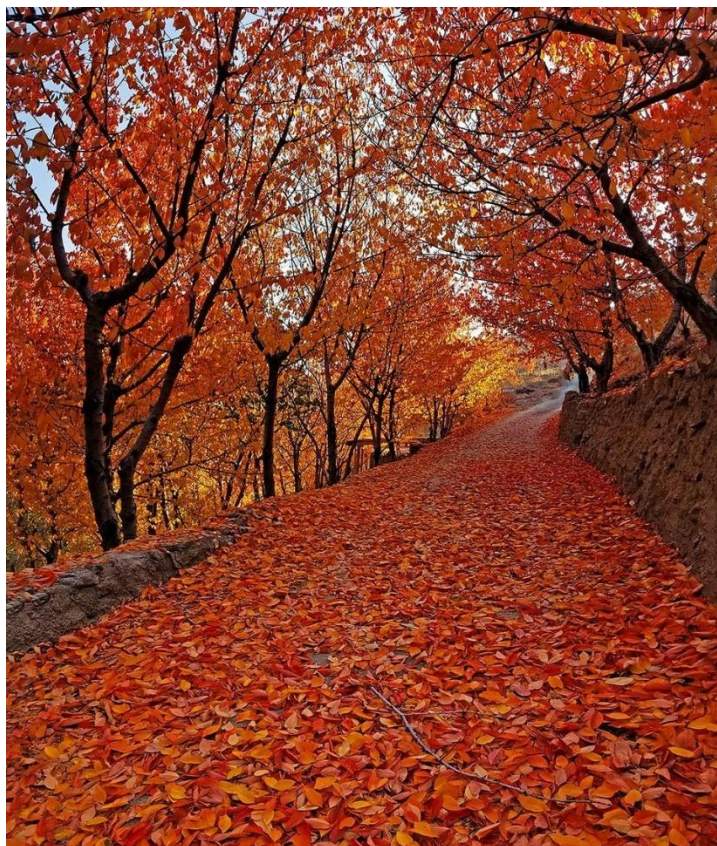
- **Mentorship Programs for Underrepresented Groups:** Implement targeted mentorship programs to support underrepresented groups in biophysical chemistry.
- **Diversity and Inclusion Workshops:** Organize workshops to address issues of diversity, equity, and inclusion within the field.
- **International Partnerships:** Strengthen collaborations with international organizations to promote diversity and global exchange.



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## Autumn Splendor of Cherry Trees

Sangan village, Tehran

[news@isobc.com](mailto:news@isobc.com)

Editor: Dr Sedighe Abedanzadeh

Executive Manager: Arash Agheli

E-mail: [a\\_agheli@ut.ac.ir](mailto:a_agheli@ut.ac.ir)

IT Manager: Azadeh Mohsenimehr

Assistant Editor: Niku Mohebalizadeh