Biophysical Society

2013 SUBGROUP MEMBERSHIP APPLICATION

As the Biophysical Society continues to grow, the Society's subgroups allow members to meet and interact within more focused areas in smaller groups. Subgroups hold scientific symposia and business meetings each year on Saturday preceding the start of the Annual Meeting. They sponsor several awards and events, including the Student Research Achievement Award (SRAA) and Poster Competition. Membership to the Society's subgroups is open to all current members. Student and Emeritus members receive complimentary subgroup membership. New subgroups may be formed by petition, signed by at least 100 regular members. The petition and accompanying bylaws need to be approved by the Society's Council.

Biophysical Society Subgroups

Bioenergetics
Biological Fluorescence
Biopolymers in vivo
Exocytosis & Endocytosis
Intrinsically Disordered Proteins
Mechanobiology
Membrane Biophysics
Membrane Structure & Assembly
Molecular Biophysics
Motility
Nanoscale Biophysics
Permeation & Transport

For descriptions of each subgroup, see reverse side.

I am applying for the following Subgroup(s):

(w/Dinner = membership + dinner at Annual Meeting in Philadelphia)

- ☐ Bioenergetics $20.00
- ☐ Biological Fluorescence $15.00
- ☐ Biopolymers in vivo $15.00
- ☐ Biopolymers in vivo w/Dinner $60.00
- ☐ Exocytosis & Endocytosis $20.00
- ☐ Exocytosis & Endocytosis w/Dinner $65.00
- ☐ Intrinsically Disordered Proteins $20.00
- ☐ Mechanobiology NEW $10.00
- ☐ Membrane Biophysics $15.00
- ☐ Membrane Biophysics w/Dinner $65.00
- ☐ Membrane Structure & Assembly $15.00
- ☐ Molecular Biophysics $15.00
- ☐ Motility $20.00
- ☐ Nanoscale Biophysics $20.00
- ☐ Permeation & Transport $15.00

My current society membership status is: ☐ Regular ☐ Early Career ☐ Student ☐ Emeritus

Students & Emeritus may join subgroups without paying subgroup fees.

Name: _____ Title: _____

Address: _____ City: _____ State: _____ Postal Code: _____ Country: _____

Phone: _____ Fax: _____ E-mail: _____ Signature: _____

Method of Payment

_____ Check *(Payable to Biophysical Society – US currency drawn on US bank. No Purchase Orders accepted.)*

_____ Credit Card

Card Type (check one): ☐ MasterCard ☐ Visa ☐ Discover ☐ American Express

Credit Card Number: _____ **Exp. Date:** ____/____ (month) (year) **Security Code** (on back of card): _____

Name as it appears on card: _____ Signature: _____

(Your signature authorizes your credit card to be charged for the total payment. The Biophysical Society reserves the right to charge the correct amount if different from the total payment.)

Please return this application to the Biophysical Society Office.

11400 Rockville Pike, Suite 800, Rockville, MD 20852 • Phone: 240-290-5600 • Fax: 240-290-5555 • society@biophysics.org • www.biophysics.org

Bioenergetics—The Bioenergetics Subgroup studies cellular and molecular processes associated with mitochondria, chloroplasts, and bacteria linked to metabolic energy transduction. Systems as varied as whole cells, intact organelles, membrane channels, carriers, and redox complexes might be used.

Biological Fluorescence—The Biological Fluorescence Subgroup focuses on the advance of knowledge pertaining to the development of new capabilities in fluorescence. Methodologies, both theoretical and experimental, and applications to derive structural and mechanistic understanding of biological systems can be involved.

Biopolymers in vivo—The purpose of Biopolymers in vivo Subgroup is to create a forum to discuss biophysical properties and function of biomolecules in cells and cell-like conditions, and to develop experimental and computational approaches to study these phenomena. The subgroup invites participants from all scientific disciplines with an interest in broadening our understanding of biophysical processes in cells, using approaches ranging from biophysical studies of biomolecules in vitro and in silico to experiments performed in living cells and beyond. We believe that this is a timely and emerging field of high importance for all aspects of biophysics. Although biopolymers such as proteins and nucleic acids are the workhorses of the cell, our knowledge about how they behave in cells is limited. One reason for this shortcoming is that the microenvironments inside cells and in cell membranes (and in extracellular spaces of multi-cellular organisms) are extremely complex, with macromolecules together occupying as much as 40% of volume but with the composition of macromolecules highly heterogeneous and constantly changing.

Exocytosis & Endocytosis—The Exocytosis & Endocytosis Subgroup promotes research on the molecular and cellular mechanisms of vesicular secretion and uptake. This subgroup addresses the processes of membrane fusion and fission, which are of crucial interest for intracellular membrane trafficking.

Intrinsically Disordered Proteins—The IDP Subgroup seeks, through the use of biophysical and computational methods, to understand the physical basis for the biological roles of proteins, or protein regions that do not exhibit 3D structure in isolation under physiological conditions. Such proteins, or regions, are said to be intrinsically disordered.

NEW **Mechanobiology**—This is an emerging area of biophysics that focuses on the role of mechanical cues that alter cellular responses and their transduction by cells. Topics ranging from rigidity sensing by stem cells to osmosensing in bacteria are all based upon mechanochemical processes. This new subgroup will call attention to how mechanical aspects of biological functions are critical for shaping organisms and influencing cellular processes at the molecular level. Cellular properties are not merely defined by their components, but how these components interact physically with one another and the cellular microenvironment over time.

Membrane Biophysics—The Membrane Biophysics Subgroup deals with the functional and regulatory mechanisms of ion transport across biological membranes.

Membrane Structure & Assembly—The Membrane Structure & Assembly Subgroup focuses on the biophysical properties of lipids, lipid assemblies, membrane proteins and lipid-protein interactions generally relevant to biological membranes and their assembly.

Molecular Biophysics—The Molecular Biophysics Subgroup investigates structures, conformational switching, responses to various imposed perturbations and deformational dynamics of biological macromolecules and their supramolecular assemblies. Measurements of thermodynamics and kinetics as well as uses of theoretical and computational methods for interpretation are addressed.

Motility—The Motility Subgroup focuses on the structure, function, and regulation of the motor protein families (myosin, kinesin and dynein) and on the protein tracks along which they move (actin filaments, microtubules) to generate muscle contraction, cell motility, and intracellular movement.

Nanoscale Biophysics—The Nanoscale Biophysics subgroup is interested in the study and control (manipulation) of biological, biocompatible, or bio-inspired matter on the scale of atoms and molecules. It is the melting pot for Nanoscale approaches ranging from theoretical to methodological studies, from advanced optical microscopy to scanning probe microscopy, from manipulation of single molecules to their imaging and tracking, from the understanding of mechanisms at the nanoscale to the design of new approaches, from molecular motors to new nanobiomaterials. So, let's think at the nanoscale!

Permeation & Transport—The Permeation & Transport Subgroup fosters the study of biophysical mechanisms of permeation and transport of small molecules and biopolymers through cell membranes.

Banner photo: *Diffraction pattern of lectin protein found in peas.* ©STFC