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New initiatives of IUPAB Executive Committee and IUPAB Council

Message from the Secretary General

Over the past few months IUPAB Executive Committee put forward some initiatives that were approved by the Council. I am presenting them now to all our Adhering Bodies and to all the Members of the Biophysical Community. Information about all these novelties is provided within this issue.

Creation of a new Task Force on "The use of Big Data in Biophysics". Since the appearance of computers that are increasingly more powerful it has become possible to handle massive information about any issue and this is accessible to an increasing number of users. In this context it was created within The International Science Council (ICSU) a Committee on Data (CODATA) (<http://www.codata.org/>). IUPAB is affiliated to ICSU and also to this Committee. Now a new Task Force has been formed and Prof. Dr. Silvia Alonso (Argentina) will act as Convenor. We use these lines to inform to all interested biophysicist that you may adhere to this Task Force to get informed about their activities and to participate in them. Simply contact Prof. Alonso (silviadelvalle@gmail.com).

Joint event of IUPAB Task Forces on Education and Capacity Building and in Structural Biology. A workshop called "Biophysics and Structural Biology at Synchrotrons" will be held in Cape Town (South Africa) on 17-26 January, 2019. IUPAB will fund students from underdeveloped countries attending this event. This activity is within of the priorities of IUPAB of promoting Biophysics, especially in continents like



**Juan Carmelo Gómez-Fernández ,
IUPAB Secretary General**

Africa.

XXIII International School of Pure and Applied Biophysics. This event will be held in Venice (Italy) on February 4-8, 2019. It will deal with "Emerging Tools in Biomechanics: from tissues down to single molecules", IUPAB will also fund students from underdeveloped countries attending this activity.

Introducing IUPAB Focused Meetings. The Executive Committee has proposed and the Council has approved to hold IUPAB Meetings on specific topics in years in which we do not have the main triennial Congress. These Focused Meetings must be IUPAB Meetings and not to be confused with annual Meeting organized by national societies. Promoting this activity IUPAB wants to increase its visibility, holding a main activity every year, in addition to funding workshops and courses as we do now.

IUPAB Focused Meetings

by Juan Carmelo Gómez-Fernández

IUPAB Secretary General

IUPAB Council has agreed to sponsor one Focused Meeting in years in which we do not hold our triennial Congress. The first occasion in which one of these Meetings is to be organized will be 2021. The organization of these Meetings should be carried out within a country which is represented in IUPAB. It will be preferred to have co-organizers from two or more countries. IUPAB will provide partial financial support.

These meetings are supposed to bring together researchers interested in a given topic, but an added value will be that participants will come from different disciplines. Topics must be timely and dealing with cutting-edge science, covering 3-4 days and of clear relevance for Biophysics. A gender and geographical balance will be required when considering the list of speakers. Regular annual Meetings of Societies will not be funded.

IUPAB must appear as the main and major sponsor of the Meeting and the sponsorship must be clearly advertised in a very prominent way in all printed and electronic material (website, flyers, etc). The name of the Meeting must be "IUPAB Focused Meeting on...".

Attendance to these Meetings must be open to participants from all countries, and with special encouragement to admit participants from countries where biophysics is emerging or from developing countries.

A bid to organize these meetings must provide the following details in the application:



-Title, dates and location. The Focused Meeting should take place in a country with an IUPAB Adhering Body. The dates of the Focused Meeting should not overlap with other IUPAB events, and should not take place within a year in which an IUPAB triennial Congress will be held.

-A brief description of meeting's topic and themes, the opportunity and importance of the topic, and the adequacy of the location should be emphasized.

-The proposed meeting dates and number of anticipated attendees should be given.

-Focused Meetings should normally have 100-300 participants. Particular attention should be paid to participation of young scientists (Ph.D. students and post-doctoral fellows).

-Scientific program. A preliminary programme should be submitted with

the application. The programme should be diverse (including lectures, open discussions, poster sessions), and it should be developed for a period of 3-4 working days. Limited social activities may be planned as well. The final Scientific Programme should be approved by IUPAB Executive Committee, and it should be submitted at least 6 months in advance of the dates proposed for the Meeting.

The organizer(s) should provide a detailed budget in €. IUPAB's contribution will be to a maximum of 7000 € for students from countries where biophysics is emerging or from developing countries, plus a maximum of 6000 € to underwrite general expenses.

Organizers of approved Meetings must provide IUPAB Secretary General with a flyer advertising the Meeting as soon as possible, to be displayed in our website and published in IUPAB News. This flyer

should be sent to IUPAB Secretary General not later than 9 months before the fixed days for such a Meeting.

Deadlines

To organize a Focused Meeting in 2021 the application deadline will be April 30, 2019.

Report

A report (the form for which can be downloaded from the IUPAB website), should be sent to the IUPAB Secretary General and to the Treasurer, not later than three months after the conclusion of the Focused Meeting. The report should include:

- 1) The detailed scientific program.
- 2) A list (including nationality and gender) of participants and lecturers.
- 3) The detailed budget.
- 4) A brief report of about 1000 words written by the organizers and accompanied by 2-3 pictures or illustrations, to be published by IUPAB News and to be posted in IUPAB website.

Applications

Applications should be sent to the IUPAB Secretary General.

The selection will be carried out by IUPAB Council (formed by Executive Committee members and Councilors).

The use of Big Data in Biophysics

New IUPAB Task Force

A new IUPAB Task Force has been constituted to link with CODATA. CODATA is the Committee on Data of the International Council for Science (ICSU) and IUPAB is affiliated to CODATA.



Prof. Dr. Silvia Alonso

Prof. Dr. Silvia Alonso (Universidad Nacional de Quilmes, Argentina), Councilor of IUPAB, will act as Convenor of this new Task Force.

Currently, a 3-year program is ongoing and is supposed to finish in 2018. The CODATA Strategic Plan 2015 and Prospectus of Strategy and Achievement 2016 identify three priority areas:

1. Promoting principles, policies and practices for Open Data and Open Science;
2. Advancing the frontiers of data science;
3. Building capacity for Open Science by improving data skills and the functions of national science systems needed to support open data.

CODATA achieves these objectives through a number of standing committees and strategic executive led initiatives, and through its Task Groups and Working Groups. CODATA supports the Data Science Journal and collaborates on major data conferences like SciDataCon and International Data Week.

The new IUPAB Task Force can take advantage of CODATA activity, so that those who join the Task Force would have access to CODATA news and interact with other CODATA members.

Last June, the ICSU-CODATA Commission on Data Standards for Science convened the first Inter-Union Workshop on Data Standards: Developing a Roadmap for Data Integration. Its purpose was to share details of data and information activities, agree on good practice, seek consensus about how unions and disciplinary groups can best work together in establishing a global network of scientific research data that is FAIR – i.e., Findable, Accessible, Interoperable and Reusable. The information will soon be available (November).

All interested biophysicists, working in a country affiliated to IUPAB or nationals of a country affiliated to IUPAB, may apply to the Convenor, to joint the new Task Force (silviadelvalle@gmail.com).



CODATA

Next events associated to CODATA:

-International Data Week, Gaborone, Botswana, 5-8 November 2018

<http://internationaldataweek.org/registration>

-International Workshop on Data Science 2018 - Present & Future of Open Data & Open Science

12 – 15 November 2018

Citizens Cultural Hall, Mishima, Shizuoka, Japan

https://ds.rois.ac.jp/article/dsws_2018/

-International conference - Data Value Chain in Science & Territories

14-15 March 2019, Paris-Val d'Europe

<http://www.codata-france.org/en/>

A view on peer review^{*}

By *Jesús Salgado, Jorge Alegre-Cebollada, Xavier Daura and Teresa Giráldez*

Biofísica Magazine Team of Editors

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Scrutiny of scientific work is a fundamental pillar of Science. It is not only needed for correctness, in a purely technical sense, but also takes care of originality, novelty and significance, ensuring that the scientific work contributes to generating new knowledge. There are two stages where this task is especially important: before the start of a scientific investigation (projects) and when the investigation yields results (publications). At both stages the dominant (almost exclusive) method for evaluation is reviewing by peers.

A precursor of peer review began in England in the early 19th century, with referees commissioned by the Royal Society of London to write reports on manuscripts sent for publication in Philosophical Transactions [1]. A

Classical peer review is relatively young. It was questioned from the beginning and has never consolidated as a unique model

standardized referee system developed from this point among the English scientific societies and slowly spread to independent journals and outside the

Anglophone world. However, it was in the 1960s when refereeing propagated as the method to objectively judge Science (although the embracement of this system was delayed by some journals, like Nature, which adopted it in 1973) [1]. During that period of the 20th century the scientific activities experienced a huge expansion, especially in the USA, with a massive increase in public funding and a parallel social and political demand for objective methods to judge scientific quality. In fact, the term peer review was first used in evaluation procedures by American funding agencies of that time and was later used as a synonym of refereeing for the case of revision of publications. Thus, classical peer review, either of projects or papers, is a relatively young system. But perhaps most importantly, it has never consolidated as a unique solid model and was, from the beginning, put into question [1]. It is then not surprising that in current times, with technological changes affecting the ways of communicating Science, the future of



peer review is subject of a particularly vivid debate.

Overflowed system

Today, the discussion about peer review connects with multiple other problems of Science [2] as well as with profound changes affecting modern publishing [3, 4]. With the dominance of bibliometrics as the measure to evaluate scientific performance, publishing has acquired a tremendous importance [5] and peer review, as the method employed to control what is published (and where), has become a crucial variable. Added to this, complex problems have emerged that affect directly to the quality of Science and thus uncover inefficiencies of the evaluation mechanisms, like poor reproducibility, fabrication of data, plagiarism or even direct corruption of the peer review system [6]. One would expect that the response of the scientific community to the clear need of stronger and more effective evaluation procedures would be to strengthen peer review, or even to evolve it into a new system, adapted to the challenges of the present and the future. However, in the vast majority of cases peer review continues being performed as it was conceived more than 50 years ago, despite its well known weaknesses.

The bibliometric epidemy [5] contributes to inflate the number of publications, and with that, the numbers of publishers and journals have also grown exponentially. This process is fuelled by digitalization and

Peer review, as the method to control what is published (and where), has become a crucial variable

automation, which makes publishing easier, cheaper and quicker than ever. But can proper assessment, criticism and discussion of scientific work be similarly escalated and accelerated? Obviously not. First, this part of the business cannot be easily automatized and needs the cautious time and attention of expert human readers / evaluators. Furthermore, the scientific methodology is quickly changing and becoming more and more sophisticated. All branches of natural sciences (including, of course, Biophysics) are increasingly becoming multidisciplinary, meaning that diverse and well prepared experts are needed to judge the scientific work. With this requirements it is easy to visualize that the pool of possible (capable) referees must be of smaller size than the pool of their peer authors. In practice, the pool of reviewers is further reduced because of the lack of incentives to perform difficult, time constrained and barely recognized reviewing tasks. This all makes finding adequate referees an herculean exercise and accentuates the weakness of the system, in a vicious circle.

Blindness vs transparency?

Openness is seen as positive: Fits with tendencies of modern publishing, brings transparency and provides ways to reward reviewers

In the scientific community there is consensus about the importance of a solid peer review system and the need to tailor its traditional scheme for current and future exigencies. However, there is no clear consensus

yet about the actions to take –more than paying homage to the stoic

anonymous reviewers [7].

A major discussion is settled about the convenient level of transparency [8]. First, we remind that the pioneer refereeing English system, as conceived and exercised originally by WILLIAM WHEWELL [1], started being completely open, with reports published and signed by the referee (in a especial Proceedings journal). But it was soon realized that such an option prevented criticism and discouraged negative reports. Thus, after a couple of years of openness, refereeing became anonymous and reports were no longer published [1]. Today's classical peer review is still mainly single blinded, with the identity of the authors known by reviewers, who remain unknown to the authors. This system has been attacked in two opposing directions. On the one hand, it is argued that the uncovered identity of authors facilitates possible discrimination because of gender, ethnic background, country of affiliation, personal relations or prestige of previous work. This has led to defend a double-blinded system [9], with unknown identities of both authors and referees. Although this option is preferred, according to some studies, it is recognized that is very difficult in practice to implement, since in many cases the type of work, cited references and other details can betray the identity of authors [10].

On the other hand, it has been pointed out that a covered identity makes referees potentially immune from their possible unfair, harsh or unsound criticisms, which is used to defend a completely open system. Openness, at different levels, is gaining adepts as it fits well with new tendencies of open

publishing and has a positive connotation, because it is seen as a way to bring transparency to the publication process. It also can provide ways to reward the reviewers via publication of their reports along with authors' manuscripts, which helps visualizing the usefulness of the peer reviewing process, even when the identity of the reviewer is kept anonymous. Although still a minority [11], an increasing number of journals are already experimenting with various degrees of openness. For instance, Nature Communications and the four journals published by EMBO offer the authors (and referees) the choice of open peer review, although the identity of the reviewers is not revealed. A number of medical journals like those from BioMed Central and BMJ have decided to go further and publish also the complete pre-publication and peer review history, including the name and affiliation of reviewers [8]. It is argued that this fully open model has the positive advantages of reviewers being more honest and constructive [12], although critics note that it may favour prestigious institutions from English speaking countries [13] or discourage criticism by junior researchers, who may

Expert scientists are busy people with exhausting responsibilities. Is "sense of duty" enough to involve them in peer review?

fear retaliation by senior colleagues [14]. Despite this concerns, a majority of participants in the meeting on Transparency, Recognition, and Innovation in Peer Review in the Life Sciences, organized by ASAPbio, HHMI and Wellcome on February 7-9, 2018 at HHMI headquarters in Chevy Chase [14], (~81%, voting in person or through the internet) favoured the option of "publishing the content of peer reviews (with or without the reviewers' names) and making these reports a formal part of the scholarly record with an associated DOI". In line with this, a large survey published in PLoS ONE by the

enough to involve them in the huge task of peer review?

Although a study promoted by Taylor & Francis Group concluded that "receiving free access to the Journal is the factor that would incentivise people most to review" [16], according to a recent survey [17], researchers ask for other incentives (Figure 1). Particularly, they would like that peer reviewing activities are "taken into consideration when they are evaluated for grants, jobs or promotions." The issue was among the ones discussed in the aforementioned ASAPbio meeting [14], where the

Should researchers' peer reviewing activities be taken into consideration when they are evaluated for grants, jobs or promotions?

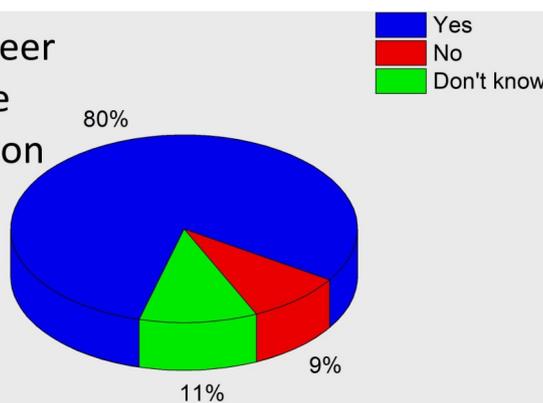


Figure 1. Opinion of scientists about recognition of their peer reviewing activities. Results of a survey carried out within the context of a recent ASAPbio | HHMI | Wellcome meeting on Transparency, Recognition, and Innovation in Peer Review in the Life Sciences (Chevy Chase, Maryland, February 7–9, 2018) [17]

majority of participants favoured a "formal recognition and credit for peer review activities from funding agencies and institutions, and acknowledging all contributors to a peer review report (such as students and postdocs) when submitting it to a journal."

end of 2017 also shows support (~60%) among the scientific community to open peer review [15].

Incentives and rewards

We all know that the referee work is a voluntary "duty" with hardly any other motivation than the personal conviction to contribute to the soundness of one's scientific discipline. But, almost by definition, the required expert scientists are very busy people under strong stress and with exhausting responsibilities at their institutions and research groups. Is "sense of duty"

The need for proper peer review recognition is intensively debated [18, 19]. It has even been argued that free reviewing (and editorial work) is "not fair in ethical terms", especially when publishing is such a profitable business [20]. Setting a standard mechanism for recognition of peer review activities is a main target of a partner initiative by F1000 and ORCID [21].

Meanwhile, Publons has created a database and a validation system to make possible that researchers who

participate in peer review get credited from their effort [22]. The goal is double: On the one hand, it intends to work as a platform to share peer reviews and discussions, provided that their dissemination is not prohibited by the journals involved in the publications. On the other hand, researchers who register at Publons are able to show their record of verifiable peer review activities, so that they can get credit to be used in their individual evaluations, either for performance enquiries, promotions or grant applications. A few institutions, like Harvard, recognize already peer review and editorial activities, which must be reported in annual evaluations. This is a big step forward, but needs to extend worldwide in order to exert a significant impact.

In summary, there is little doubt that a deep improvement of the strategies for assessing the quality of Science is a most urgent need. However, as we just discussed, the general perception is that this crucial and demanding task is not sufficiently rewarded. Very interesting initiatives exist to adapt, at multiple levels, classical peer review. Although the changes already in place seem mostly experimental, we can foresee that a renewed refereeing system, characterized by increased openness, rewarding and recognition, will soon crystallize.

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Impact Factor and Biophysics

by *Juan Carmelo Gómez-Fernández*

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We live in a rapidly changing world. Changes affect scientific publications as to many other things. Thirty years ago when one wanted to select a journal to publish a paper, the selection depended mainly on the prestige of the publication. Even, in some cases, there was a preference to publish in Journals close to everyone. For example, many people from Europe tended to publish in European Journals and Americans in American Journals. The introduction by ISI of Journal of Citations Reports and the so called Impact Factors (IFs) introduced changes on these tendencies. IFs were progressively popularized and many Governments, Universities and Research Institutes started using these IFs to qualify the scientific work of persons applying for a job or for a



Juan Carmelo Gómez-Fernández.

grant. Of course that we may discuss if this is or not appropriate and I have the impression that in North America, for example, this is followed with less enthusiasm than in Europe. But I do not want to enter here in this controversy. The fact is that, we like it or not, this is

used with increased frequency. In consequence scientific workers are looking desperately for Journals with high IFs.

There is a further invention: quartiles (a quartile is each of four equal groups into which a population can be divided according to the distribution of values of a particular

variable, IF in this case). In many cases the scientific quality of an applicant is

judged through a quantitative scale, in which papers published in the first quartile (the one with the highest IFs values) deserves more points than another published in the second quartile. In these qualification systems the historical record of a certain journal or if it is published in a given country are not at all appreciated, researchers will look for the journal with the highest possible IFs and quartile. Now, let us consider a problem. A given journal may be in the second quartile if is included only in Biochemistry and Molecular Biology but it may be in first quartile if is also included in Biophysics. There are many cases of journals included in more than one category with different standings depending on the Category that it is considered. In most cases it is enough to be in the first quartile (Q1) to be given the maximum of points in the mentioned quantitative scales. In some cases even deciles are considered with the same considerations than for quartiles.

What happens is that ISI has a tremendous power to modulate this state of things. The reason is that this company determines if a Journal is

included in a certain division (Category) or not and this may be decisive for putting it in a first quartile or decile. Therefore it may increase the prestige of a Journal or the quality of a researcher judged in this mode certainly arguable. Not long ago, for example, they created a new Category Biochemical Research Methods and

non-genuine biophysically oriented Journals creates a distortion of the field, decreasing the available journals in Q1 that will publish Biophysics research. This trend is also seen for other Journals in the other quartiles of the Category Biophysics. Also, there are Journals with a high percentage of biophysically oriented papers, currently included in

$$IF_y = \frac{(Citations_{y-1} + Citations_{y-2}) \text{ in } y}{Publications_{y-1} + Publications_{y-2}}$$

Calculating the Impact Factor (IF). *y* is the year of the IF

other Categories as Physics or Chemical Physics that are not included in Biophysics.

Journals that were occupying not very high positions in the ranking of Biochemistry and Molecular Biology were given a boost and were now happily positioned in a first quartile.

I ignore how ISI can establish if a Journal should be or not included in a Category, in particular in the Category Biophysics. My impression is that the title of the Journal is very important to take this decision, but still, looking at the Journals included in this category, I suspect that some other factors may be involved.

If one inspects the Journals included in Biophysics it can be seen that there are 72. Of them there will be 7 as D1 (first decile) and 18 as Q1 (first quartile). What worries me is that at least one of the first seven (D1) and 5 or 6 of the first 18 (Q1) rarely publish research in Biophysics but they are more oriented towards Biochemistry or Cell Biology. I know that in many cases it is very difficult to define the borders between sciences related with Molecular and Cell Biology but I think that in this particular case the problem to which I am pointing out is very real. The inclusion of these

Another problem is that many of the first positions are occupied by Journals specialized in publishing reviews, but this is a different problem to be discussed in a future occasion.

What can we do at this respect? If the policy used by employers and organizations awarding grants will continue using IFs as today (and I forecast that they will) I think that scientists should claim for a higher accuracy when defining Categories in bibliographical analysis. Perhaps even we should propose that this function should be played by International Organizations of scientists (non for profit organizations) as it happens with for example chemical nomenclature or units. This will ensure a better accuracy when establishing which journal should be or not in a certain Category and it could allow a higher fairness for scientists. Is this possible? I know that it will not be at all easy, given the conflicts of interest that may arise, but I think that it is worthwhile to fight to improve the current state of things.

*The opinions expressed here are solely attributable to the author.

Young Biophysicists in the Spotlight:

Karin Kornmüller

Medical University of Graz; Gottfried Schatz Research Center for Cell Signaling, Metabolism and Aging; Biophysics; Nanomedicine Group

by Rainer Schindl

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Karin Kornmüller, Medical University of Graz

Whenever you meet Karin you are welcomed with a big smile and you are instantly infected with her enthusiasm and positive mood. Not only that she is blessed with an optimistic and lively character - I am impressed that Karin manages to publish a top 10 research article as a first author every year. When I asked her how to combine such successful re-search output with such a well-balanced attitude, she attributed this to the creative and inspiring atmosphere and people around her.

Karin is researcher at the Medical University of Graz in the nanomedicine laboratory of Assoc. Prof. Dr. Ruth Prassl. One particular strength of Ruth's re-search team is her talent to establish and maintain long lasting and fruitful collaborations. Whether it is within the newly established Gottfried Schatz Research Center, or connecting

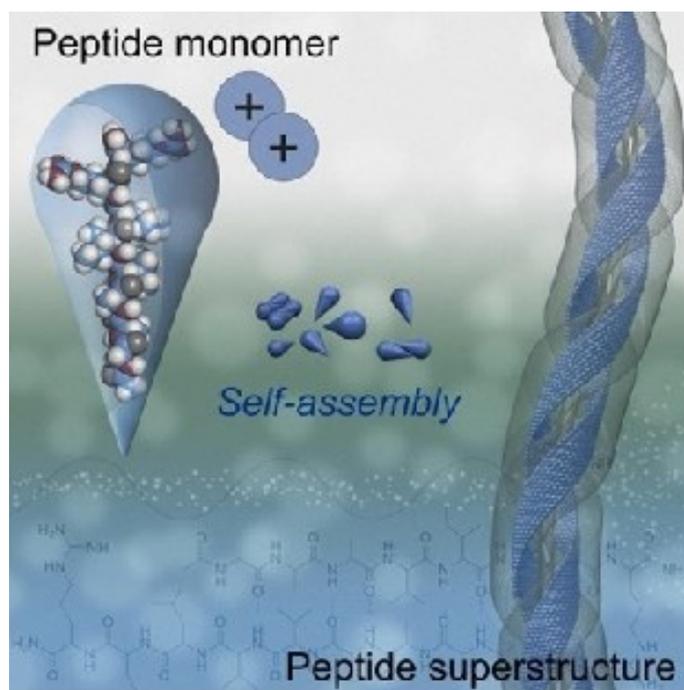
institutes from all three Graz universities, or in national and international teams – Karin is engaged in many interdisciplinary research projects. The idea of interdisciplinarity is visible throughout Karin's scientific education. "Well, I was fascinated by so many things, I couldn't pinpoint it to classical physics, biology, or medicine." Karin explains. That's why she decided to study molecular biology, followed by a masters in biochemistry and molecular

biomedicine, and a PhD in biophysics. When asked, she considers herself a trained structural biologist with a strong background in biochemistry, who uses the exciting toolkit of biophysicists, but always within the frame of medical relevance and applicability.

When Karin started in Ruth's lab, one of the research tasks was the crystallization of a tricky protein. This

protein kept re-searchers around the globe busy for dec-ades. At that time, Karin was keen to tackle this research topic with a totally new approach. She was inspired by a visit by the distinguished expert from the MIT, who proposed designer peptides as alternative to conventional detergents in protein crystallography. Indeed, when Karin tested their potential, some of these designer peptides performed quite well as detergents, however, even more astonishing were their self-assembling properties. as novel biomaterials for future medical applications.

Karin immediately was captivated by the beauty of structures which these peptides spontaneously form in solution. Remarkably, these initially monomeric peptides attach to each other to form highly ordered supramolecular structures with an



Above a certain concentration peptides spontaneously self-assemble into highly ordered supramolecular structures.

These structures are the basis for the development of novel nano-materials for medical applications.

astonishing level of perfection. Self-assembled peptide super-structures have size ranges from a few nanometers to sub-micrometers. Very simple in their design and composed of only naturally occurring amino-acids, the peptides promise a huge potential. These include delivery systems for targeted drug- or gene-delivery and 3D scaffolds for tissue-engineering. Many of the peptides form tubular or spherical structures, but Karin has a particular intuition for finding unique architectures.

At the Biophysical Society Meeting in San Francisco, Karin presented new, spectacular data that was promptly rewarded with the internationally recognized Student Research Achievement Award. Investigating a novel peptide, all the scattering curves from Synchrotron small angle X-ray scattering measurements promised something unexpected. Months of meticulous fitting function development and structure refinement, cross-checking with electron-microscopy and spectroscopy techniques, resulted in the discovery of the first self-assembled supra-molecular peptide double helix. The real beauty of the double helix was revealed when Karin got cryo-EM pictures that perfectly fitted to her proposed model structure.

Since designer peptides can adopt only a rather limited number of basic architectures (vesicles, tubes, fibers, helical ribbons, flat sheets and a donut structure have been found in the past few years), the discovery of this new morphology was highly exciting. Karin's good sense for designing peptides that self-assemble into unique architectures led also to the discovery of only rarely

observed peptide lamellae, which strikingly mimic lipid membranes.

Only recently she received the ESG Nano Prize 2018, an advancement award of the Erwin Schrödinger Society to support talented young scientists, for her research on lamellar peptide structures. A major goal of Karin is to combine her curiosity driven research with practical medical applications. With respect to applying peptides as novel materials, a large focus of her research is the investigation of peptide

interactions with artificial and biological membranes. In the future she aims to expand this approach, in order to answer fundamental questions: what happens at different hierarchical levels, when peptide nanomaterials are interfaced with biological materials? What happens at the membrane level? What happens at cell level, and what happens at the tissue level? Every question by itself is an ambitious challenge, but Karin is a dedicated optimist, so she always sets her goals high.

A Biophysicist's Portrait: Georg Pabst*

Karl Franzens University Graz

by Gerhard Schütz

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Georg Pabst, Karl Franzens University Graz

Mir ist dann eingefallen, dass ..." describes one of the key experiences in science. It's hard to translate to English language. "I have an idea" doesn't really capture the stochastic process of being struck by an insight. It needs preparation, though. You can't just sit at your computer, typing your latest manuscript or grant proposal.

The "Einfall" (inspiration) requires suitable environment, and the appropriate mood. Quite often, it happens when relaxing after a conference, a hearing, or – as in case of Georg Pabst – at the end of an exhaustive poster session. "I strolled around at the 2015 EBSA meeting in Dresden, tired of the many posters I've seen, and gazed out into the distance." A figure on one of the posters caught his attention. "Ah, diffraction data, that may be interesting, I'll have a look". There was a student, who used *E. coli* as active swimmers to modulate interactions of colloidal particles. "I was not so much interested in the colloidal physics, but in the fact that one can do diffraction experiments on live cells!" The "Einfall" was there, and after a preliminary experiment and some discussions with colleagues, a grant proposal was submitted and funded. "We've just started with this

Fact sheet:

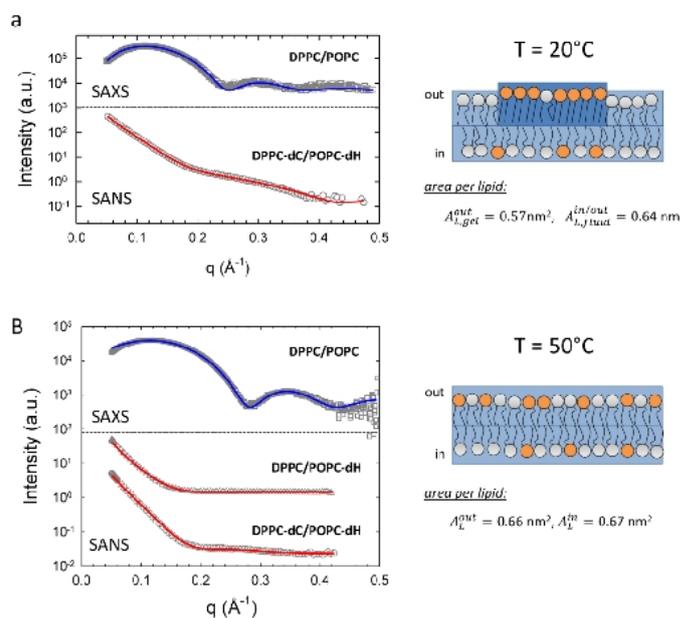
- **Born 24. 11. 1970 in Salzburg**
- **2000: PhD in Physics TU Graz**
- **2000 – 2001: Post doctoral researcher at the National Research Council, Ca-nadian Neutron Source, Chalk River**
- **2007: Habilitation in Applied Physics TU Graz**
- **2002 – 2012: Research Scientist, Institute of Biophysics and Nanosystems Research, Austrian Academy of Sciences, Graz**
- **2012 – 2014: Assistant Professor at the Karl Franzens University Graz**
- **Since 2014: Associate Professor at the Karl Franzens University Graz**

project: we will be able to see for the first time, how antimicrobial peptides act on a bacterial membrane with milliseconds time resolution!" This is what most of us know Georg Pabst for: a membrane biophysicist, with a deep understanding on how lipids and proteins feel in a bilayer. But let's start from the beginning. Georg Pabst grew up in Zell am See as an Otolaryngologist's son. "In school I was not so much interested in molecular cell biology, however: there were too many complicated terms. I liked quantum physics and astronomy." So Georg decided to study technical physics, and he moved to TU Graz. "I always wanted to go to Graz. Compared to Karl Franzens University, the TU Graz appeared more attractive, because it offered the clear perspective for easily finding a job in industry later on. He graduated with a work on the trajectories of charged particles in a time of flight mass spectrometer. "Then I wanted to do something new." Again, an "Einfall" came, in this case as a job offer for a PhD position in the group of Peter Laggner at the Institute of

were two words: synchrotron and Trieste. "I liked the idea of working on a huge machine. And I also liked the idea of working in Trieste." Together with Michael Rappolt, he studied temperature-induced non-equilibrium states in multilamellar lipid vesicles. "Compared to equilibrium we indeed found substantially smaller bilayer repeat distances, when applying temperature jumps with an infrared laser. Peter Laggner was excited." It took them, however, quite some time to understand the reason for this effect. And Georg had to develop a new method for the

Biophysics and Nanosystems Research of the Austrian Academy of Sciences in Graz. "In fact, I didn't have high expectations for my application, since the job offer was already expired by a year or so. And I didn't understand too much of the text on the advertisement." What he understood, though,

analysis of small angle X-ray scattering data. "We needed to disentangle bilayer thickness and bilayer separation from noisy scattering data." Applying this method to their data yielded disappointing results: "There was no new structural intermediate of the lipid bilayer, just an ultrafast thinning of the interstitial water layer". Still, the publication of the new method became Georg's best cited paper and it caught the attention of John Katsaras, a well-known membrane biophysicist, then at the Chalk River laboratories in Ontario, Canada. Supported by a Schrödinger stipendium from the FWF, Georg went for a postdoctoral stay to Canada to work on peptide-membrane



Leaflet specific structure of DPPC/POPC asymmetric bilayers above and below the melting temperature of DPPC via a joint analysis of small angle X-ray and neutron scattering (SAXS/SANS) data. At low temperatures (a) DPPC-rich gel-like domains in the outer leaflet have a significantly larger area per lipid than in symmetric DPPC bilayers due to a coupling to the inner fluid POPC-rich leaflet. The gel-like domains melt upon raising temperature to 50 °C, which leads to an equilibration of lipid areas in both leaflets (b). Figure taken from F.A. Heberle and G. Pabst, *Biophys. Rev.* **9: 353 (2017).**

interactions. “When I arrived with my family in Canada, there was ice rain, and the next day we had one meter of snow. I knew that I wouldn’t stay for long there.” After a year, he returned to Austria, full of enthusiasm and motivation. Again, he joined the group of Peter Laggner, “but I had to learn a lot when setting up my own group.” Georg was interested then in the mechanism behind the function of anesthetics. “That was, except for a paper in JACS together with Thomas Stockner, rather unsuccessful with respect to getting funded. Things changed, when I switched fields and began with studying membrane domains and asymmetric bilayers”. He and his group have been determining, how lipids pack in the different leaflets and domains and how that couples to membrane protein function. Since then, Georg became increasingly recognized by the community: in 2016 he has started as editorial board member of the Biophysical Journal, and from 2010-2013 he was Biophysics Austria president. In the last few years, the retirement of Peter Laggner and restructuring of the Austrian Academy of Sciences led to Georg’s move to the Karl- Franzens University Graz, where he became associate professor at the Institute of Molecular Biosciences. “For me, this was a very good solution of a difficult situation. Particularly, the improved contacts to biologists now bring a lot of new interesting research questions. In fact, this is how I would define biophysics: trying to find physics in biology”. I could start here a second story, portraying Georg Pabst the musician. “I had bands since school time, it got more intense from my student times on.” Georg sings, plays

guitar, and is the song-writer in MurBeat, a band playing, what he calls, “Mundart Funk and Rock“ i.e. with lyrics in Austrian dialect. With some luck, you can hear them on the local radio: “Two

of our songs are regularly played on Radio Steiermark. And in three weeks, we are back to the studio.” We wish him and us a successful recording session, and a lot of “gute Einfälle”!

Young Initiative on Biophysics: Seeding the future of biophysics in Argentina

The Young Initiative on Biophysics (YIB) is a group conformed by students and young researchers founded in 2015 and sponsored by the Argentine Society of Biophysics (SAB). Macarena Siri and Galo Balatti, Ph.D. fellows and members of SAB founded this group with the spirit of creating a network of undergraduate students, Ph.D. candidates and postdoctoral researchers working on the diverse and rich fields of biophysics to share ideas, inspiration and practical advices. Since then, the group has been

growing and nowadays it looks forward to expand its frontiers to other Latin-American countries in order to strengthen connections between young biophysicist fellows. Regional integration is a challenge, particularly in the developing economies of Latin America. However, fostering such integration is worth the effort given that the present Ph.D. students and early career researchers will be the future decision-makers in scientific and technological developments.

To fulfil its aim, the YIB has been



Latin American Crosstalk in Biophysics and Physiology, held in Salto, Uruguay; November 2015. This meeting was the starting point for the initiative.



The founding members: Macarena Siri (center) and Galo Balatti (far right) with the speakers of the First "Young Biophysics" Symposium, satellite meeting of the IX Ibero-American Congress of Biophysics held in San Miguel de Tucumán, Argentina, November 2016

Argentina, where Ph.D. students from different disciplines and geographical regions of Argentina gave outstanding short talks. Due to the favourable reception of the symposium, young researchers from Argentina and other Iberoamerican countries joined the initiative, bringing their ideas to enrich the initial proposal.

In 2017, the YIB organized a satellite symposium to the Joint Meeting of Bioscience Societies, held at the University of Quilmes in Bernal, Argentina. In this occasion, the symposium included talks, lectures and



This year, the YIB is organizing the III symposium and satellite meeting in La Plata, Argentina, in conjunction with the XLVII SAB Annual Meeting. This brain-

storming event will include lectures, workshops and motivational talks, as well as recreational activities.

In our view, the academic education of young researchers and the strengthening of international collaborative networks must be a key objective in a world where science and technology play an increasing important role but where, paradoxically, international integration seems to be under threat. YIB is seeking to promote and strengthen interactions between young biophysicist through networking meetings in Argentina, and, in the near future, expanding to other countries within Latin America. We encourage undergrad students, Ph.D. students and postdocs to join

this initiative.

For further information about YIB please contact Macarena Siri or Galo Balatti to:

young.initiative.on.biophysics@gmail.com



Second "Young Biophysics" Symposium. A satellite meeting held in Quilmes, Argentina, November 2017.

organizing symposia and satellites events to SAB Annual Meetings and regional Congresses. In 2016, the first YIB symposium took place during the IX Ibero-American Congress of Biophysics held in San Miguel de Tucumán,

posters sessions, alongside with touristic and recreational activities to offer a friendly environment to share and discuss issues related to the everyday work life.

Report on the 4th Annual Meeting of the Biophysical Society of Canada

22-25th May, 2018. Simon Fraser University's downtown Narbour Centre campus, Vancouver, Canada



Natalie Strynadka from the University of British Columbia was honored as the 2018 Fellow of the Biophysical Society of Canada. She also presented the National Lecture. Other notable scientific highlights of the conference included Keynote Lectures by **Mei Hong** from the Massachusetts Institute of Technology, **Jennifer Lippincott-Schwartz** from the Janelia Research Campus of the Howard Hughes Medical Institute, **Barbara Baird** from Cornell University, and **William Ryu** from the University of Toronto. Congratulations to the student poster award winners: Alaa Al-Shaer, J. Andrew Alexander, Daniel Berard, Catherine Byrne, Caitlin Cornell, Chloe Gerak, Marvin Gunawan, Chapin Korosec, Stephen Large, Chantelle Leveille, Franco Li, Haydee Mesa Galloso and Spencer Smyth.

Highlights:

The 4th Annual Meeting of the Biophysical Society of Canada was held May 22-25, 2018 in Vancouver at Simon Fraser University's downtown Harbour Centre campus. The conference brought together over 200 participants for plenary presentations, scientific talks and posters, and networking opportunities (including the conference banquet, held on a boat cruise alongside Vancouver's North Shore mountains). Scientific presentations covered a wide range of topics within biophysics, including protein structure and dynamics, single-molecule spectroscopy, computational biophysics, membranes and lipids, cell mechanics and dynamics and emerging imaging techniques. In total, 40 talks

and 98 poster presentations were made at the conference. New this year, the conference was preceded by a Trainee Symposium, organized by trainee members of the BSC executive. This half-day symposium included sessions focused on transitioning from academia into industry and on trainee-presented talks.

During the meeting,



For details, please go to <https://biophysicalsociety.ca/past-meetings/bsc-2018-vancouver-bc/>. Looking forward to BSC 2019 May 28-31, 2019 in Toronto!

Report on EBSA Membranes and Lipid-Protein Interactions Workshop

Partially funded by IUPAB

10-15th June, 2018. La Grande Motte, Montpellier, France

Organizers Pierre-Emmanuel Milhiet (Montpellier University, FR) and Anthony Watts (University of Oxford, UK).



The 5th EBSA membranes workshop was held in La Grande Motte, Southern France in June 2018, and attracted over 27 students and post doctoral fellows from 14 countries, including Chile, India, Czech republic, Hungary, Slovakia, Ukraine, Germany, Spain, France, UK, Finland, Italy, Belgium.

The format of the workshop was similar to that used in previous workshops, and lectures (3 -4 per day) were supplemented by student and lecturer lead case studies (3 – 6 per day), where students discussed their research work, successes and problems to a wider audience. This seemed to be very

The Venue & Location:

Hotel Mercure, La Grande Motte, Hérault, France

Members of Scientific Advisory/Committee Board:

- Anthony Watts (UK, President of EBSA)
- John Seddon (UK, Secretary of EBSA)
- Pierre-Emmanuel Milhiet (Montpellier University, FR).

popular with the students, and stimulated lots of ongoing discussions later at meals and in the bar, and will no doubt have created some collaborations and exchange of expert knowledge.

The Hotel Mercure located on the Marina of La Grande Motte was the ideal venue for the workshop, with its enviable location and right in the vibrant heart of the town, it offered magnificent views of the harbour and sea. Being before the main holiday season, the resort was relatively quiet, and there was always plenty of space to relax and group tables were conducive to scientific and other conversations.

EBSA supported the workshop to a significant degree, and with IUPAB support also, it is hoped that it will be possible to hold more of these kinds of events in the coming years when the main EBSA congress does not take place (EBSA Madrid Congress in 2019).

Invited speakers and lecturers who attended the course:

- **Antoinette Killian**, Utrecht, NL - Model membranes and polymer-bounded nanodiscs to study protein/lipid interactions
- **Pierre-Emmanuel Milhiet**, Montpellier, FR - AFM and Related

Microscopies for Membrane Biophysics
 - **Manuel Prieto**, Lisbon, PT - Membrane Biophysics, Phases and Lipid Domains. Cholesterol in Membranes.
 - **John Seddon**, Imperial College London, UK - X-ray and Neutron Diffraction of Lipid Membranes
 - **Sébastien Granier**, Montpellier, FR - Structural Biology of Membrane Proteins
 - **Christian Eggeling**, Oxford, UK - Single-Molecule Applications in Membrane

Biophysics.
 - **Sandrine Sagan**, Paris, FR - Membrane Active Peptides: Cell Penetrating Peptides vs. Antimicrobial Peptides
 - **Ilpo Vattulainen**, Tampere University of Technology, FI - Molecular Dynamics Simulation - Simulation Techniques in Membranes
 - **Bonnie Wallace**, Birbeck College London, UK - CD Spectroscopy of Membrane proteins
 - **Anthony Watts**, Oxford, UK - Solid

State NMR - Drug Targeting
 - **Daniel Levy**, Curie Institute - Cryo-Electron Microscopy and tomography

The Total Number of regular participants, including plenary speakers but excluding accompanying guests and local organizers of the Course/Workshop/Special Meeting was: 37
 Regular Participants Included:

- Graduate students (26)
- Postdoctoral students (1)

Report on British Biophysical Society Biennial Meeting

11-13th July 2018. University of Southampton, Southampton, UK

The 2018 Biennial Meeting of the British Biophysical Society was held at the University of Southampton in July this year. The three-day meeting attracted over 100 scientists from all

over the world, including South Korea, Iraq and India. Nobel Laureates and graduate students alike engaged in high quality talks, posters and networking.

The scientific program was divided into the themes; cell membrane, cell interior, the whole cell, delivery into the cell and emerging imaging technologies and also included an award session, in



British Biophysical Society Committee members who were able to attend its Biennial meeting in Southampton this summer, together with honoured guests. Left to Right: Tharin Blumenshein (BBS Secretary), Tony Watts, Richard Henderson (honoured guest), Olwyn Byron (BBS Chair), Hartmut Michel (honoured guest), Mark Wallace (BBS Webmaster, IoP Biological Physics Representative), Ann Dixon (BBS Treasurer), Syma Khalid (2018 BBS Biennial Meeting Chair), John Seddon.

which the British Biophysical Society Young Investigator Award, the Institute of Physics Tom Duke Lecturer Award and the inaugural Sosei Heptares Prize for Biophysics were awarded to Lorna Dougan, Robert Endres and Elspeth Garman, respectively. The plenary lecture was delivered by Hartmut Michel, MPI Frankfurt.

The meeting was conducted in a relaxed atmosphere that combined scientific excellence with an informality that empowered even masters and PhD



Awards recipients. Left to Right: Lorna Dougan (left) presented with the BBS Young Investigator Award by Olwyn Byron; Robert Endres (left) congratulated by Chiu Fan Lee on his delivery of the Institute of Physics Tom Duke Lecture; Elspeth Garman (right) presented with the Sosei Heptares Prize for Biophysics by Richard Henderson

students to ask probing questions of the more established scientists. The sunshine and world cup fever sweeping through the country at the time facilitated the social inclusiveness and cohesion of the meeting, as did the unexpected karaoke event being held in the student bar after the conference dinner.

From the organiser's perspective, while our science speaks for itself, it was immensely pleasing to be reminded of

the collegiate and supportive feeling within the UK and global biophysics communities, which were very much on display at the 2018 meeting. Now we look forward to the 2020 meeting which will mark the 60th anniversary of the BBS.

Syma Khalid

BBS committee member and 2018 BBS Biennial Meeting Chair

Report on the XXIV National Congress of The Italian Society for Pure and Applied Biophysics

10- 13th September 2018. Università Politecnica delle Marche, Ancona, Italy

The Italian Society for Pure and Applied Biophysics (SIBPA) held its XXIV National Congress in the town of Ancona, Italy, on September 10-13, 2018. The

impressive venue was the former Villarey barracks, now hosting the Università Politecnica delle Marche.



The Congress web site is at: <http://www.pa.ibf.cnr.it/sibpa/CongressoNazionaleSIBPAAncona/>

Following the same format of recent editions, the program of SIBPA 2018 included five sessions that covered all aspects of modern biophysics, from molecular to cellular, computational and applied, with emphasis on interdisciplinary approaches. Three exciting keynote lectures spanning from bio-nanotechnology to fundamental biomolecular interactions were delivered by renowned scientists, namely Giancarlo Ruocco, (University of Roma "La Sapienza" and IIT-CLNS@SAPIENZA), Ivo Rendina (IMM-CNR, Napoli), and Maria Antonietta Ricci (University of Roma Tre).



Five invited speakers started each session. Alberto Boffi (University of Rome "La Sapienza") for the Molecular Biophysics session; Matteo Ceccarelli (University of Cagliari) for the Theoretical-Computational Biophysics session; Riccardo Cicchi (INO-CNR, Firenze) for the Applied Biophysics session; Giorgio Rispoli (University of Ferrara) for the Cellular Biophysics

session; Sergio Enrique Moya (Center for Cooperative Research in Biomaterials, San Sebastian, Spain) for the Biophysics at the nanoscale session. In addition, 40 oral communications and 30 poster were presented to the meeting.

The congress was attended by over 90 participants, out of which more than half were young scientists at early stages of their scientific carrier. SIBPA supported 20 of them with fellowships that covered in full the congress expenses. The traditional ceremony of SIBPA Awards presentation concluded the 2018 Congress. The Prize "Antonio Borsellino" for the best PhD Thesis in biophysics was awarded to Giuseppe Sancataldo (University of Genova and Istituto Italiano di Tecnologia). The Prize "Gianfranco Menestrina" for the best M.Sc. thesis was awarded to Denise Pezzuoli (University of Parma). The "Marina Diana Mercurio – SIBPA" Prize, meant to recognize scientists whose work has been distinctly interdisciplinary, was assigned to Francesco Lenci (CNR, Pisa).

Report on Advances in Brillouin Light Scattering & BioBrillouin Meeting

14-16th September 2018. Perugia, Italy



The congress "Advances in Brillouin Light Scattering & BioBrillouin Meeting" was held in Perugia from the 14th to the 16th of September (<https://sites.google.com/view/advances-in-bls-2018>).

The meeting was organized by the Group of High-resolution Optical Spectroscopy and related Techniques (GHOST) - <https://sites.google.com/view/ghost-laboratory/home> a mixed unit that involves personnel from the Department of Physics and Geology of the University of Perugia and from the Istituto Officina dei Materiali (IOM) of the National Research Council - in collaboration with the Core Group

of the Bio-Brillouin Cost Action- <https://www.biobrillouin.eu/>.

The congress, attended by about 100 participants from all over the world (about 80 International and 20 Italian), celebrated **30 years of BLS activity of the GHOST laboratory**. A Special Session was devoted to the 40th Anniversary of the Tandem Fabry-Pérot Interferometer. This session ended with **the conferment ceremony of PhD "Honoris Causa" to John R. Sandercock** for his invention and its impact on science and technology.

The scientific program included several plenary sessions, as well as parallel symposia covering different research areas: advances in the instrumentation for Brillouin Light Scattering, characterization of magnetic nanostructures, mechanical characterization of viscoelastic materials with particular emphasis on biological materials extremely relevant in life science.

The congress was endorsed by SIBPA – Società Italiana di Biofisica Pura ed Applicata- and EBSA-European Biophysical Societies' Association.



14th “Greta Pifat Mrzljak”

International School of Biophysics “University of Split”

August 23th – September 1st, 2018 | Split, Croatia



The School was held at the Faculty of Science, University of Split, Croatia. This eminent and internationally recognized School, has been traditionally organized, for more than 35 years, by the Croatian Biophysical Society. The

Institute of physics, Zagreb, as well as by the companies Nanotemper, Bruker, JPK, Oxford Instruments and Asolutic.

This year the School developed further on the concept of the hands-on training workshops that were provided

beforehand and along with the ex-cathedra lectures by renowned scientists. This format was introduced to the School in 2016 and shows great promise for the future.

Prof. Fraser MacMillan and Prof. Frank Sobott, chairs of the co-organizing COST actions,

countries and some from beyond, like Russia, Australia and Iran. About 15-20 lecturers participate at each School, mostly from EU and some from USA, Canada, Australia.

All the contributions by lecturers and by students, who present posters and also give short talks are much appreciated and are always a great incentive for the organization of the next event, now the 15th School in 2020.



Tomislav Vuletić

School Chair, secretary of the Society



recent School was also co-organized by the EU Cooperation in Science and Technology - COST Actions CA15126 “ARBRE-MOBIEU”, CM1306 „Molecular Machines“ and BM1403 „Native MS“ and for the first time by the Faculty of Science, University of Split, Croatia. It was supported by EBSA (European Biophysical Societies’ Association) and

participated as lecturers, as well as the President of EBSA, Prof. Anthony Watts and past President, Prof. Helmut Grubmueller, thus substantiating further the EBSA support to the School.

Schools have 70+ students, usually from 20-30, mostly European

HRVATSKO BIOFIZIČKO DRUŠTVO

Croatian Biophysical Society

<http://biofizika.hr>

HR - 10000 Zagreb, Bijenička 54



Mechanobiology

International Biophysics School "Academician Radoslav K. Andjus" (NERKA)

October 6th – 8th, 2018 | Kotor, Montenegro

Partially funded by IUPAB

Important facts

Travel:

The venue is reachable by 3 international airports: Tivat (15 min by car), Podgorica (1.5h), Dubrovnik (~3h with border crossing)

Accommodation:

For the accommodation arrangements you are welcome to contact Miro & Sons in Kotor on this email: info@miroandsons.com, as well as to use other booking means: there many opportunities for economical accommodation in the vicinity of the Institute from private villas for rent to small hotels

Duration:

3 days

Lecture hall:

50+ persons

Method:

Tutorial lectures, round table discussions, student posters

Social events:

Excursion of the Boka bay; diner at the seacoast

Registration fee:

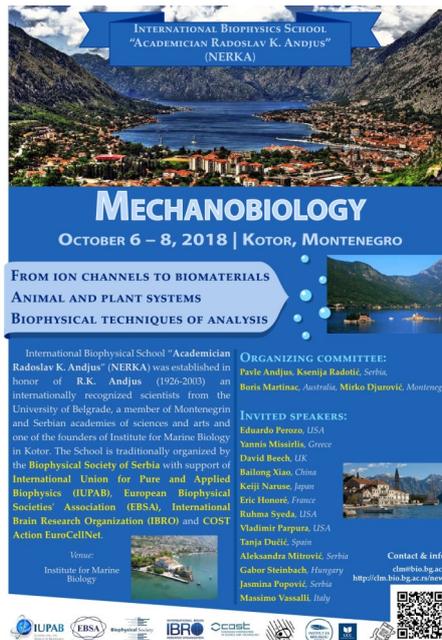
200 €

[Registration fee waiver still available upon request](#)

For further info contact:

clm@bio.bg.ac.rs

<http://clm.bio.bg.ac.rs/2018/04/04/nerka7-mechanobiology/>



mechanotransduction"

12:00 - 14:00 *Lunch brake*

14:00 - 15:30 **Ruhma Syeda**, USA, "Mechanosensitivity of Piezo1 ion channels"

15:30 - 17:00 **Keiji Naruse**, Japan: "Mechanomedicine"

17:00 - 18:30 **Aleksandra Mitrović**, Serbia: "Tension or compression - plants or structural engineers"

20:00 *Dinner - get together and meet the speakers*

Monday, 08 October 2018

Mechanisms across nature and techniques

08:00 - 09:00 *On site - breakfast and snacks get together*

09:00 - 10:30 **Eric Honoré**, France: "Molecular biophysics of mechanotransduction"

10:30 - 12:00 **Vladimir Parpura**, USA: „Rheology in astrocytes"

12:00 - 14:00 *Lunch brake*

14:00 - 15:30 **Tanja Dučić**, Spain:

"Synchrotron-based microscopy of cytoskeletal mechanostuctures"

15:30 - 17:00 **Gabor Steinbach**, Hungary: "Differential polarization imaging using confocal and re-scan confocal microscopes"

17:00 - 18:30 **Jasmina Popović**, Serbia: "Responses to mechanical stimuli - chemistry of reaction wood"

18:30 - 19:30 *Wrap up discussion panel* - "Translational value of mechanobiology" (moderators Boris Martinac, Ksenija Radotić, Pavle Andjus)

20:00 *Farewell Dinner*

Program

Saturday, 06 October 2018

15:00 - 16:00 *Registration and snacks*

16:00 Welcome address

16:30 - 17:30 **Eduardo Perozo**, USA

"Mechanosensitive ion channel structure & function"

17:30 - 19:00 **Yannis Missirlis**, Greece:

"Tissue Morphogenesis and Mechanoepigenetics".

20:00 *Dinner - get together and meet the speaker*

Sunday, 07 October 2018

Mechanosensitive ion channels

08:00 - 09:00 *On site breakfast and snacks get together*

09:00 - 10:30 **David Beech**, UK:

"Endothelial Piezo1 and shear stress sensing"

10:30 - 12:00 **Massimo Vassalli**, Italy:

"Role of membrane lipids in Piezo1 mediated cellular



Asian Biophysics Association Symposium in conjunction with the Australian Society for Biophysics Meeting

Melbourne Dec 2-6, 2018

RMIT University Melbourne

<https://events.synchrotron.org.au/event/55/>

Plenary Speakers

Jackie Y. Ying (MIT, USA) Georgina Sweet awardee

Zihe Rao (Tsinghua University, China)

Satyajit Mayor (NCBS, India) EMBO Keynote Speaker

Young Investigator talks selected from abstracts
Student travel awards available

Registration now open

Earlybird & abstract deadline
October 1st

Invited Speakers

Membrane Biophysics

- Mibel Aguilar (Australia)
- Masahito Yamazaki (Japan)
- Won Do Heo (South Korea)
- Isabelle Rouiller (Australia)

MRI & PET

- N.R. Jagannathan (India)
- Leigh Johnston (Australia)
- Jarryd Pla (Australia)

Neuroscience

- Yun-Ru (Ruby) Chen (Taiwan)
- Pingbo Huang (Hong Kong)
- Rob Vandenberg (Australia)

Biophysics & Medicine

- Ewa M. Goldys (Australia)
- Zhihong Zhang (China)
- Fan Bai (China)
- Hye Ran Koh (South Korea)
- Rob Solomon (Australia)

Superresolution Microscopy

- Srishti Dar (India)
- Olga Shimoni (Australia)
- Yujie Sun (China)

Bioinformatics & Computational Biology

- Sihyun Ham (South Korea)
- Carmay Lim (Taiwan)
- Shoba Ranganathan (Australia)

Nanobiophysics & Mechanobiology

- Masahiro Sokabe (Japan)
- Sara Baratchi (Australia)

Omics

- Meng-Qiu Dong (China)

Structural Biology

- Jia-Wei Wu (China)
- Hanna Yuan (Taiwan)
- Ichio Shimada (Japan)
- Michelle Dunstone (Australia)
- Brett Collins (Australia)
- Quan Hao (Hong Kong)
- Mark Hulet (Australia)
- Jacqui Matthews (Australia)



Georgina Sweet Award for Women
in Quantitative Biomedical Science



GE Healthcare



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THE SCIENCE OF WHAT'S POSSIBLE.™



Israel Biophysical Society Meeting 15 January 2019 Tel Aviv University

Keynote speaker

Koenderink Gijsje (AMOLF)

Invited speakers

Ariel Kaplan (Technion)
Ayelet Lesman (TAU)
Elishā Hass (BIU)
Eran Sharon (HUJI)
Liraz Chai (HUJI)
Na'ama Brenner (Technion)
Nir Gov (Weizmann)
Ofer Feinerman (Weizmann)
Rami Pugatch (BGU)
Ronen Berkovich (BGU)
Ronen Zaidel-Bar (TAU)
Yuval Garini (BIU)

Location:

Exact Sciences Building, TAU

Registration Deadline

December 15, 2018
Registration is free but required

Best Poster will be awarded an iPad!

Organizing Committee

R Beck-Barkai; Y Lahini; A Lesman;
Y Meroz; S Reuveni; Y Roichman

For further details:

biosoft@tau.ac.il
www.tau.ac.il/~biosoft



BIOPHYSICS & STRUCTURAL BIOLOGY AT SYNCHROTRONS

17 - 24 JANUARY 2019

University of Cape Town

CAPE TOWN

Western Cape, South Africa

PRESENTERS

Introducing bioscientists to synchrotron-based facilities, focusing on the structure determination and other biophysical resources required for vaccine design, drug discovery, industrial enzymology and agrochemicals.

The course will trace the technology required to go from gene to protein structure, as well as synchrotron based techniques for imaging cells. Topics covered will include advanced strategies for crystallization, high-throughput data collection by X-ray diffraction, single particle cryo-EM, structure refinement, X-ray tomography, circular dichroism and spectroscopy. Students will learn how to access synchrotron based resources and will get practical experience of working with proteins, data collection/processing, interpretation & complex experimental strategies, with time reserved for students to collect their own data using remote access of an MX beamline at the Diamond Light Source.

BURSARIES AVAILABLE

Post-doctoral fellows, emerging scientists and post-graduate students may apply for partial or full-cost bursaries to attend the workshop.

Gwyndaf Evans, Diamond Light Source
Margot Frangakis, Goethe University Frankfurt
Elspeth Garman, University of Oxford
Richard Garratt, University of São Paulo
Lars-Oliver Kautshor, Zeiss Microscopy
Michael Lawrence, WEHIMR
Barend H. Lich, Thermo Fisher Scientific
Sylvia Onesti, Elettra Sincrotrone Trieste
Eva Pereiro, ALBA Synchrotron
Helen Saibil, Birkbeck University of London
Wolf-Dieter Schubert, University of Pretoria
Frances Separovic, University of Melbourne
Trevor Sewell, University of Cape Town
Ramaswamy Subramanian, inStem
Frank von Delft, University of Oxford
Bonnie Wallace, Birkbeck University of London
Jeremy Woodward, University of Cape Town

For more information
www.biophysicsworkshop.co.za

XXIII INTERNATIONAL SCHOOL OF PURE AND APPLIED BIOPHYSICS

(<http://tiny.cc/BiophysicSchool-2019>)



Venice (Italy) - Palazzo Franchetti

4-8 February 2019

Emerging Tools in Biomechanics: from tissues down to single molecules

Mechanical properties have a key role in biological processes. At the interface between biology, physics, and mechanics the school will survey recent advances and the emerging techniques able to probe mechanical properties of biological material. Combining lectures, application talks and hands-on training, the school will introduce the topic at different length scales, from molecular and sub-cellular approaches (Atomic Force Microscopy, Acoustic Force Spectroscopy), to single cells (Brillouin microspectroscopy, MEMS) also extending towards multicellular organization and tissues (nanoindentation, ultrasonic micro-elastography). Theoretical lessons will be complemented with in silico tutorials (image and data analysis) and experimental activities.

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DIRECTOR OF THE SCHOOL:

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CONTRIBUTIONS OF COMPANIES TO HANDS ON ACTIVITIES:

Nanomechanics <http://nanomechanicsinc.com>
Nanosurf <http://nanomechanicsinc.com>
Lumicks <https://lumicks.com>
Optics11 <http://optics11.com>
Olympus <http://olympus-lifescience.com>





JOINT 12TH EBSA
10TH ICBP-IUPAP
BIOPHYSICS CONGRESS
BIOPHYSICS FOR LIFE AND TECHNOLOGY



SAVE THE DATE!

Dear Colleagues,

On behalf of the EBSA-IUPAP 2019 Organizing Committee we are pleased to invite you to the upcoming Congress which will take place from 20th to 24th July 2019 in Madrid (Spain) at the **Palacio Municipal de Congresos**.

Plenary Invited Speakers



Stefan Hell
Nobel Prize 2014



Randy Schekman
Nobel Prize 2013



Eva Nogales



Julio M. Fernandez



Gregory A. Voth



Jennifer Lippincott-Schwartz



Madan Rao

SYMPOSIA

BIOMOLECULAR SIMULATION AND COMPUTATIONAL BIOPHYSICS
 PROTEIN FOLDING AND ASSEMBLY
 PROTEIN STRUCTURE AND FUNCTION
 MEMBRANE STRUCTURE AND DYNAMICS
 MACROMOLECULAR COMPLEXES
 MECHANISMS OF MEMBRANE PROTEINS
 LIPID AND LIPIDOME BIOPHYSICS
 DNA ARCHITECTURE AND GENE REGULATION (INCLUDING STOCHASTIC GENE EXPRESSION)
 GENE NETWORK DYNAMICS AND SIGNALING
 MOLECULAR MOTORS
 SINGLE MOLECULE BIOPHYSICS
 NEW FRONTIERS IN BIOIMAGING
 LIVE IMAGING AND OPTICAL MICROSCOPY
 CELLULAR PROLIFERATION (INCLUDING CANCER AND BIOFILMS)
 BIOPHYSICS OF THE IMMUNE RESPONSE
 DATA SCIENCES AND BIOPHYSICS
 BIOPHYSICS OF CYTOSKELETON
 BIOLOGICAL SELF-ORGANIZATION AND MORPHOGENESIS
 NONEQUILIBRIUM PHYSICS IN BIOLOGY
 NEW AND NOTABLE
 EMERGING BREAKTHROUGH MOLECULAR-SCALE BIOPHYSICS METHODOLOGIES

Please visit www.ebsa-iupap2019.org for information about the congress, including the preliminary scientific program and list of speakers.

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Executive Committee of IUPAB

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The Executive Committee and the Council are depicted at the end of the General Assembly in Edinburgh, 18th July, 2017



IUPAB News Number 69, September, 2018

**Activities of the
INTERNATIONAL UNION for
PURE and APPLIED
BIOPHYSICS**

**From the Secretary-General:
Professor Dr. Juan C. Gomez-
Fernandez**

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**IUPAB is registered in France
according Loi du 1er Juillet
1901-Art. 5, n°**

**ordre 03/000309, n° dossier
00158190**

The International Union for Pure and Applied Biophysics (IUPAB) was formed in Stockholm in 1961 as the International Organisation for Pure and Applied Biophysics. It was established as the International Union in 1966, when it became a member of the ICSU (International Council for Science) family. Affiliated to it are the national adhering bodies of 61 countries. Its function is to support research and teaching in biophysics. Its principal regular activity is the triennial International Congresses and General Assemblies.



Important Announcement Sponsorship Policy of IUPAB

As from now on there will be a change in the sponsorship policy with respect to that posted in:

<http://iupab.org/about/sponsorship/>

So that point 8, will read:

Applications for financial support of Conferences, Schools and other

should be returned to the Secretary General at least before June 30th of the year prior to the event if it is scheduled for the first semester of the following year or before the 31st of December if it will take place during the second semester.

If organizers of meetings are seeking only the approval of IUPAB, including the use of the IUPAB logo, but not requesting financial support, applications may be submitted to the Secretary General at any time and will be considered by the Executive Committee by correspondence.

Note from the Editor:

IUPAB News will be happy to reproduce articles previously published by bulletins or other publications of any of our Adhering Bodies. We will be also happy to consider articles written by biophysicists on scientific or other subjects of broad interest for the biophysical community. You may contact the Secretary General with respect to this matter.

IUPAB is not responsible for the opinions expressed in the articles here included, nor necessarily share these opinions.

The Editor of IUPAB News is the IUPAB Secretary General Juan Carmelo Gómez-Fernández. This publication is produced and published at the University of Murcia, Departamento de Bioquímica y Biología Molecular A, Campus de Espinardo, Murcia, Spain.

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