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 IUPAP Office hosted & supported by: **NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE**

From the President



IUPAP is always working hard to fulfil its mission of assisting in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems that are of concern for humanity. As a part of this effort it is working to help the global community of physicists play their part in the international world of physics and thus help IUPAP achieve its mission. Elsewhere in this newsletter I will say more about what IUPAP is doing for physicists. Here I want to emphasise the fact that in little more than 4 months, delegations of members of IUPAP will be meeting in our 29th General Assembly, in São Paulo, Brazil from 11th to 13th October. This will be the first time IUPAP holds its General Assembly in South America and the second time that that meeting has been south of the Equator. It is an example of the way in which IUPAP is working to assist in the worldwide development of physics.

This General Assembly is an important one. As I have pointed out previously, our mother organisation, the International Council of Science (ICSU), will at its General Assembly two weeks later, be deciding whether or not to merge with the International Council of Social Sciences. Our General Assembly will tell our delegates to the ICSU GA what the opinion of IUPAP is on this merger. We will hear the first reports of the three new Working Groups established after the 28th General Assembly and make decisions about how IUPAP will cover Accelerator Science and Soft Matter in the next three years.

Another development is that the Council has authorised officers, assisted by Michel Spiro, the former Chair of our Working Group 10 (WG10), the Astroparticle Physics International Committee (ApPIC) and the present Chair of the French Physical Society, to pursue the goal of having UNESCO and consequently the UN General Assembly declare the year 2022 as the International Year of Basic Sciences for Development (IYBSD). Physics and other basic sciences underlie the huge changes that have occurred in our lives in the last 100 years. But in the developed world, these changes are so much a part of our lives that we all forget the fundamental role that basic sciences have played in bringing them about. As a simple example, I am old enough to remember how the availability of fresh foods in supermarkets or the markets depended on the seasons. Now my market has fruit and vegetables kept fresh in storage or brought in fresh from far away regardless of the season. Those simple changes ultimately depend on basic sciences. In less developed countries, we still have to bring many similar benefits to the people. And that transition depends on both global and local developments in the basic sciences. 2022 is the year in which IUPAP turns a 100 years old. We believe that celebrating our centenary and the IYBSD at the same time will help keep our vision firmly fixed on the future as we celebrate our past. Our 29th General Assembly will be asked to commit IUPAP to pursuing this goal.

The business of our General Assembly will take place in the mornings. The afternoons will be devoted to a workshop on New Challenges in pure and applied Physics. Workshop participants will include delegates to the GA and physicists from Latin America. This will help our Latin American colleagues appreciate the wide breadth of physics that comes under the IUPAP umbrella and will help the members of IUPAP understand the scope of the physics being done in Latin America.

I am very much looking forward to our 29th General Assembly and if you are one of the delegates of our members to the GA, or one of the participants in the workshop, I am looking forward to meeting you.

The ASEAN Federation of Physical Societies

The Association of South-East Asian Nations (ASEAN) was formed on 8 August 1967. The historical establishment of the ASEAN Federation of Physical Societies (AFPS) coincides with the 50th anniversary of ASEAN this August. 22 representatives from Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam attended the inaugural meeting of AFPS on 23 March 2017 at the Nanyang Executive Centre, NTU to discuss strategies for developing sustainable and more organic collaborations, as well as the developing sharing of resources through the formation of the ASEAN Federation that could serve as a point of collaborative and communicational convergence.



The establishment of the first ad-hoc ASEAN Committee on Science and Technology (COST) in Jakarta in 1970, was highlighted. Of the nine ASEAN COST subcommittees that have been formed for the period between 2016 and 2025, it was noted that at least four subcommittees directly address the physical sciences: meteorology and geophysics; materials science and technology; sustainable energy research; and space technology and applications.” These subcommittees are representative of important areas of scientific research for ASEAN; materials science and sustainable energy, for instance, are among the earliest areas of research that the ASEAN states had ventured into, given the close connections of both to infrastructural and socio-economic developments.

The subcommittee on Science and Technology Infrastructure and Resources Development could potentially be a platform for improving STEM (Science, technology, engineering and mathematics) literacy and physics education in the region. The slow pace of ASEAN COST, is the result of how ASEAN was set up – which is to operate at the rate of its slowest member state. Although a number of regional physics and physical science societies were previously set up to facilitate co-operation among the Asian physics community, most have failed to push forward a regional scientific agenda. Hence, ASEAN states that were able to do so would form bilateral scientific collaborations with other more advanced states, which do not necessarily contribute to the overall scientific developments of ASEAN as a whole. Much still has to be done at the ASEAN ministerial level to ensure better coherence and continuation between regional and national needs. Currently, the realities of physics R&D and education in ASEAN are mostly stark. Among the common problems faced are insufficient

infrastructural and resource support, and the marginalization of research in theoretical physics due to continuous emphasis on industrial application. Certain ASEAN countries such as Singapore, Vietnam, Thailand, Malaysia, the Philippines, and Indonesia are doing better than others – these are also the countries with more established physical societies and physics departments for maintaining the visibility of physics in their respective national science and technology agenda. Some, such as Brunei, have only one university with a physics department, and only a small number of students choose to major in physics. Employment prospects within their area of studies, other than in teaching, are not abundant for many of the ASEAN states.

The formation of “ASEAN Federation of Physical Societies (AFPS)” is a big step forward, encouraging physics, its development and education in the region. Among the activities and responsibilities of AFPS are to: organize training sessions and workshops for young researchers in ASEAN through online broadcast or physical participation so as to encourage a flow of scientists and students within the region for research and education; aid in the formation of a physical society in Brunei, Cambodia, Myanmar and Laos; cooperate with CERN, European Physical Societies, American Physical Societies, and Institute of Physics, UK etc on regional collaboration in interdisciplinary areas such as computational and particle physics, medical research and imaging. IUPAP can help to better these collaborations and encourage development and education through sponsored conferences and workshops. It is thus encouraged for the ASEAN countries to become members of IUPAP and join in the larger worldwide physics family.

International Year of Sound

The board of the International Commission for Acoustics (ICA), IUPAP Affiliated Commission AC3, is working towards the declaration of an International Year of Sound in 2019 (IYS 2019) and is grateful for the support and encouragement thus far from IUPAP.



Sound is an all encompassing aspect of life and an international year with a focus on sound provides tremendous scope to improve the understanding of the underlying physics principles as well as applications in science, technology and engineering. The ICA believes that the International year of Sound follows on well from the International Year of Light (2015), which is considered to be one of the most successful International Years. The ICA has received enthusiastic support from a wide range of organisations involved in various aspects of physical and social sciences as well as from institutions related to health, culture, sociology and education.

Sound is an integral part of culture and society from basic requirements for communication, awareness of our environment, and expression of our culture through to sophisticated scientific and technological instruments.

The International Year of Sound will enable coordination of international and national activities to achieve the following goals:

- Improve the public understanding of the wide application of sound in our daily life.

- Promote the relevance of sound to music and culture.
- Identify and maintain soundscapes (the sound that is part of different environments) as part of cultural heritage.
- Highlight the importance of the use and benefits of sound while controlling unwanted noise.
- Raise understanding of those in society with hearing or speech impairment.
- Promote the importance of protecting hearing – especially in the workplace and in recreational activities.
- Promote the important role that sound plays in medicine and the improvement that brings to the health of the community.
- Raise the knowledge of the applications and impact of sound underwater.
- Increase worldwide education with activities targeted at science and technology for young people.
- Enhance international cooperation between learned societies, educational establishments and industry.
- Maintain these goals and achievements into the future beyond the International Year of Sound.

These activities will aim to stimulate the understanding and awareness throughout the world of the important role that the physical concept of sound plays in all aspects of our society. The declaration of an International Year of Sound in 2019 will provide a focus that will encourage transfer of knowledge including creating, controlling, hearing and using sound in nature, in the built environment and in all aspects of our lives. The ICA committee which was formed with the purpose to achieve the declaration of the IYS 2019, is in contact with UNESCO and expects important decisions to be made in 2017.

Pierre Binétruy (1955-2017)

In Memoriam



IUPAP was saddened to learn of the death of Pierre Binétruy on April 1st, 2017. He has served the C4 commission on Astroparticle Physics since 2014 as well as the ApPIC working group of IUPAP, which he helped to create in 2013.

Pierre Binétruy, born in 1955, received his doctorate in 1980 under the direction of Mary K Gaillard, entitled “Theoretical and Phenomenological Aspects of Gauge Theories”. From 1979

to 1986, he held several positions at CERN (fellow) and in the United States (University of California at Berkeley, University of Florida, University of Chicago). In 1986, he was recruited as a researcher at the LAPP, Annecy-le-Vieux and 4 years later as a professor at the University of Paris XI in the Laboratory of Theoretical Physics, where he became a professor of exceptional class in 1999. Since 2003, he was a professor at the University Paris Diderot.

His main interests have evolved from high energy physics (notably supersymmetry) to cosmology and gravitation, and in particular, the interface between the study of the primordial Universe and the theories of fundamental interactions. His recent interests included inflation models, dark energy, and gravitational wave cosmological backgrounds. During his prolific career, he published seminal papers that approached 1000 citations each. For his research, he received several awards (Thibaud Prize, Paul Langevin Award from French Physical Society, Miller Professor 1996 in Berkeley). He was one of the most brilliant theorists of his time.

But his memory will also remain because, to paraphrase Andre Malraux, he combined “spirit and courage”, since he knew that it was necessary not only to seek scientific truth but also to have the courage to organize the community for the scientific goals that this truth imposes and also fight within the institutions to defend them.

He also had the central intuition, towards mid-2015, a time when the detection of gravitational waves was for many a distant dream, to involve France through CNES in the space program to detect gravitational waves: LisaPathfinder and Lisa. A scientific choice to which he devoted a great part of his dynamism and this until and during the days of his hospitalization.

Pierre Binétruy was the director of the Astroparticle and Cosmology Laboratory (APC) in Paris until 2013. Also, he was a professor who inspired hundreds of students. In parallel to these activities he found time, amongst others, to be president of the Fundamental Physics Advisory Group (2008-2010) and the Fundamental Physics Roadmap Committee (2009-2010) of ESA; the French consortium of the LISA space mission; the Theory Division of the French Physical Society (1995-2003); the interdisciplinary section of the Astroparticle (2003-2004) and the Theory sections (2005-2008) of the CNRS. He was finally the Director of the Endowment Fund “For Research and Training in the Physics of the Universe”. He was also a member of the IN2P3 Scientific Committee (1996-2000), the APPEC Scientific Advisory Committee, of the European Space Science Committee, the Scientific Program Committee (SPC) of the SLAC National Laboratory, the Evaluation Committee of the DOE Roadmap, the International Evaluation Committee of INFN (Italy), and NSERC (Canada). Finally, in recent years, he was a member of the CNRS Scientific Council.

This activity, pursued with enthusiasm and unflinching rigor, was accompanied by great culture and sophistication, a profound, knowledge of the arts, where he propelled several actions between art and science, and especially a great human quality. This quality has resulted in that the news of his disappearance being received with great sadness throughout the world. As one of his eminent colleagues said of him: “Pierre was one of those very exceptional people who was at the top of the game and, at the same time, a remarkably pleasant colleague. “

The European French Science, as well as the world in general has lost one of its exemplary practitioners.

What does IUPAP do for physicists?

Bruce McKellar, *President IUPAP*.

Just over 20 years ago, the then President of IUPAP, Jan Nilsson in his first few months in the position, published a paper “What can IUPAP do for you?” in *Physics World*, December 1996, p13. In my last few months as President, I am writing what is an update of that paper, now published in our own quarterly newsletter. I will first explain how IUPAP is structured, how it is financed, and what it is doing for the physicists of the world.

Unlike my national physics society, the Australian Institute of physics, IUPAP does not have individual physicists as its members. “The members of IUPAP are communities of physicists engaged in independent scientific activity each within a definite territory and

listed under a name that avoids any misunderstanding about the territory represented”, as stated in our statutes [<http://iupap.org/about-us/statutes/>].

However, the work of IUPAP is done by individual physicists. A large number of them. There are 15 of us on the Executive Council, which governs IUPAP in the three-year interval between General Assemblies. We state that our mission

is to assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity.



Group photo of the IUPAP C&CC with hosts at Taipei in October 2016

and that we carry out our mission by

sponsoring international meetings; fostering communications and publications; encouraging research and education; fostering the free circulation of scientists; promoting international agreements on symbols, units and nomenclature; and cooperating with other organisations on disciplinary and interdisciplinary problems.

Much of the work is done by the 18 Commissions each of which have 14 members, and by our 11 Working Groups, which have differing numbers of members, about 350 physicists in total. Each of our 60 territorial members appoints a liaison committee which may have from 1 to 20 members to manage the interactions between the member and the organisation — about 450 people. Each of the international meetings that we sponsor will have an organising committee and an advisory committee. As we sponsor approximately 30 conferences per year, this is about 700 more people working for IUPAP. All of these 1500 physicists working for IUPAP are volunteers. We have just one paid staff member, Maitri Bobba, in our Singapore Office with the awesome responsibility of keeping the wheels of the organisation turning, and of collecting our subscriptions from our territorial members. These subscriptions are our sole income, and amount to about 0.5 Million Euros. About 35% of our income is spent on keeping the organisation working, and 65% is delivered to physicists around the world, much of it in ways that generate even more benefits for them.

Most of the funds we spend on you, the worldwide community of physicists, is spent on the conferences we sponsor. We spend approximately 200,000 Euros on our conferences. But the fact that the conference is IUPAP-sponsored is a key factor which facilitates the conference getting much more money from national sources. In many cases, the IUPAP support has unlocked 50 times as much other support for the conference. International conferences have always been a big part of IUPAP's activities, since its formation in 1922. Initially the emphasis was on the creation of a network of international conferences. Then in the days of the cold war IUPAP, and its parent body, then called the International Council of Scientific Unions, developed their policy on the free circulation of scientists, working very hard to ensure that those invited to the conferences were not excluded from attending because of their citizenship. First, the concentration was on getting scientists from the Soviet Block to the west, then on getting Israelis to the Soviet Union, then getting expatriate Chinese to China, then Chinese to the US and now Middle Eastern Scientists to the UK and the US. I have memories of the 1996 IUPAP General Assembly at which some were concerned that, with the dramatic political changes of the early years of that decade, the freedom of movement of scientists may no longer be

a major activity of IUPAP. How wrong we all were. As you can see from the statements on our website and in previous issues of this newsletter, the freedom of movement of scientists continues to be a major activity of IUPAP. All of our conferences carry our policy on their website:

To secure IUPAP sponsorship, the organisers have provided assurance that (Conference name) will be conducted in accordance with IUPAP principles as stated in the IUPAP resolutions passed by the General Assembly in 2008 and 2011. In particular, no bona fide scientist will be excluded from participation on the grounds of national origin, nationality, or political considerations unrelated to science.

Another major activity of IUPAP, one which has developed over the last twenty years, is a drive to increase the proportion of physicists who are women, to improve the recognition that those women receive and to ensure that they are not harassed because of their gender. Our Working Group 5, on women in physics, was established in 1999, initially to obtain data on the representation of women in physics and to increase the involvement of women in IUPAP. Both of these activities are still important activities of WG5. IUPAP is a partner in the ICSU-supported project A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It? This will enable an extension and an update of the earlier surveys of the position of women in physics and in other sciences. My predecessor as President of IUPAP, Cecilia Jarlskog, was our first woman President. I hope we will now have many more. At its meeting in October 2016, the IUPAP Executive Council resolved that future IUPAP Commissions should have at least FOUR women members, and that one of the Vice Presidents at Large will be appointed as Vice-President at Large with responsibility as Gender Champion to monitor the recognition of women in IUPAP and its Conferences. That meeting of Council also required that IUPAP conferences include a statement about harassment on their websites emphasising that we expect all participants at our conferences to have a comfortable experience.

It is the policy of the International Union of Pure and Applied Physics (IUPAP) that all participants in Union activities will enjoy an environment which encourages the free expression and exchange of scientific ideas, and is free from all forms of discrimination, harassment, and retaliation. The conference organisers will name an advisor who will consult with those who have suffered from harassment and who will suggest ways of redressing their problems, and an advisor who will counsel those accused of harassment. The conference organisers may, after due consideration, take such action as they deem appropriate, including warning or expulsion from the conference without refund.

IUPAP has done much to improve the participation of women in physics and the recognition that they receive for that role. But more needs to be done.

IUPAP has long recognised that physics, and physics education, play an important part in supporting the economic and social development of the world. We established our Commission on Physics for Development, C13, in 1981. Now the Commission runs annual workshops to develop physics capability in less developed countries in the world. C13 developed our partnership with the International Union of Crystallography which is undertaking the Lightsources for Africa, the Americas, and Middle East Project

(LAAMP), also supported by ICSU. IUPAP has been a supporter of SESAME, the light source of the middle east, since its inception. It established the African School on "Electronic Structure Methods and Applications" in conjunction with ICTP and the African Institute of Mathematical Sciences (AIMS) in 2010, which has been held every 2nd year since then. Promoting physics for development is an expanding IUPAP activity. I hope the move of our office to Singapore will encourage further activities of this nature in Asia.

Perhaps the IUPAP activity which is most visible to working physicists are the IUPAP conferences. Why is IUPAP support of an international conference so important, given that our total income would cover the total budget of just one or two major conferences, and we spread a little more than 40% of our budget on about 30 conferences? Conference organisers find that IUPAP is vital to facilitate getting financial support from other bodies. Indeed many national funding bodies support physics conferences only if they are IUPAP conferences. IUPAP endorsement of a conference provides protection for physicists from losing their money or their reputation to fake conferences. Do the experiment of googling the major conference in your field. When I google mine, ICHEP (International Conference on High Energy Physics), I find ICHEP 2016 Chicago and ICHEP Paris 2017. The IUPAP conference is ICHEP 2016 Chicago and since the IUPAP conference is run every two years, ICHEP Paris 2017 must be a fake conference. Further research shows you that most members of the International Scientific Committee are not high energy physicists. A check that I did on one of the members of the International Scientific Committee for the similar conference in 2012 disclosed that they were unaware that they were on the Committee. Most of the papers are not in High Energy Physics either. These fake conferences, and the similar fake journals, exist to make money for the organiser, in many cases extracting it from unsuspecting physicists. A few years ago, one was held in Melbourne and I dropped in. I couldn't get far without paying the

exorbitant conference fee, but I did hear the angry confrontation between the registration desk and a participant who realised he wasn't at a real conference and wanted his money back. It also seemed that some participants happily went along to get another "refereed" conference on their cv and to visit a new country at the expense of their institution. Every year we get enquiries from people wanting to know which conference is the real IUPAP conference, and many more people use our website or newsletter to distinguish between real and fake conferences. I encourage all of you to be aware of fake conferences and use IUPAP as your guarantor of genuine conferences.

Authoritative recognition of excellence is more and more important when employers are using unreliable or misleading indicators of excellence, such as citation counts or journal impact factors. IUPAP has long given out medals and prizes in recognition of excellence. An example is the Boltzmann Medal which has been awarded by the IUPAP Commission on Statistical Physics since 1975. In 1975, IUPAP introduced the IUPAP Young Scientist Prize which is granted by Commissions and Affiliated Commissions to physicists who have up to 8 years of research experience post PhD, allowing for career interruptions. You can find the winners listed on our webpage at <http://iupap.org/young-scientist-prize/> and the most recent winners are described in this newsletter. When you see physicists you know on this list you find cases where the recognition of their excellence granted by IUPAP has helped them advance their careers.

These are just a few of the things which IUPAP, more precisely, the volunteers who work for IUPAP, do for physicists. If physicists reading this discover that IUPAP helps them, and they decide that they can become involved and help IUPAP help other physicists, our Union will have a bright future.

¹ I have decided to refer to our members as territorial members, finessing the question of their political status..

² See the report in the March 2017 IUPAP Newsletter, p6. <http://iupap.org/wp-content/uploads/2017/03/IUPAP-Mar2017-web1.pdf>

³ Described in more detail in the March 2017 IUPAP Newsletter, p4 (url above in footnote 2)

⁴ Do you know that the region with the most citations per physics paper published in the last 15 years is the Faroe Islands?



Group photo of some of the GA 2014 participants

IUPAP YOUNG SCIENTIST PRIZES 2017

IUPAP Young Scientist Prize in Laser Physics and Photonics (C17)



(Applied Aspects)

Igor Aharonovich

“For his outstanding contributions to research on quantum emitters in wide band-gap semiconductors”.

A/Prof Aharonovich is currently an academic at the University of Technology (UTS) Sydney, Australia where he leads the Nanophotonics research group. Previously, he was a postdoctoral fellow at Harvard University, Boston, United States; following a PhD (2010) at University of Melbourne, Melbourne, Australia; and a BSc (2005) & MSc (2007) from Technion – Israel Institute of Technology, Israel.



(Fundamental Aspects)

Mohsen Rahmani

“For his outstanding contributions to light-matter interactions at nanoscale, particularly nonlinear nanophotonics via metallic, dielectric and semiconductor nanostructures and metasurfaces, which have paved the road for extending nonlinear optics to nanoscale”.

Dr Rahmani is currently an Australian Research Council Discovery Early Career Research Award holder at the Australian National University, Canberra Australia. Until recently, he was a research associate at the Blakett Laboratory, Imperial College London, United Kingdom; following a PhD from the National University of Singapore, Singapore (2013).

IUPAP Young Scientist Prize in General Relativity & Gravitation (AC2)



Aron C Wall

“For his fundamental contributions to our understanding of gravitational entropy and the generalized second law of thermodynamics.”

Aron Wall is awarded the 2017 Young Scientist Prize in General Relativity and Gravitation for his fundamental contributions to our understanding of gravitational entropy and the generalized second law of thermodynamics. After studying Great Books at St. John’s College in Santa Fe, Aron Wall continued his studies in theoretical physics with Ted Jacobson at the University of Maryland, where he received his PhD in 2011. His thesis, a proof that black holes obey the second law of thermodynamics when coupled to quantum fields, was awarded the 2013 Bergmann-Wheeler Thesis Prize from the International Society on General Relativity and Gravitation. As a Simons Postdoctoral Fellow at the University of California, Santa Barbara, Wall broadened his research efforts toward the holographic principle, and showed, most notably, that the holographic entanglement entropy satisfies a quantum information inequality known as “Strong Subadditivity”.

In 2014, Wall became a Member of the Institute for Advanced Study (Princeton), where he was able to resolve some long-standing conceptual problems concerning black hole entropy. He constructed an increasing entropy formula for all possible higher curvature modifications to Einstein gravity. With William Donnelly, he gave a statistical-mechanical explanation for a puzzling effect whereby electromagnetic fields seemingly contribute negatively to the entropy of a black hole. He also spearheaded a new research program on a conjectured lower bound on the quantum stress-energy tensor, and proved the conjecture for a broad class of theories. These results have potential applications in high-energy and condensed-matter physics.

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In August 2017, Wall expects to join the Stanford Institute for Theoretical Physics for a third postdoctoral position. He explains physics and theology in his personal blog: Undivided Looking.

IUPAP Young Scientist Prize in Biological Physics (C6)



Hyun Youk

“For his elegant demonstration of how statistical physics, dynamical systems theory and experiments can be combined to address fundamental questions in cell biology, and his recent work that shows how cell-cell communication can shape the spatio-temporal dynamics of living cells.”

After his undergraduate studies in Physics and Mathematics 2000-2004 at the Victoria College in Toronto, Canada, Hyun Youk moved to Johns Hopkins University in Baltimore to continue his studies in Astronomy and Physics from 2004-2006. In the following years, he did his PhD in Physics and Systems Biology under the guidance of Professor Alexander van Oudenaarden investigating glucose sensing and import in yeast cells at the MIT in Cambridge before he went in 2011 as postdoctoral fellow to the laboratory of Wendell Lim at the University of California in San Francisco where he studied autocrine signaling, one of the three major forms of cell-cell communication. In January 2015, Hyun Youk moved to Europe with a European Research Council (ERC) Starting Grant, and has since then established his own research lab as assistant professor of Physics and Quantitative Biology at the Kavli Institute of Nanoscience, TU Delft, in the Netherlands, where he continues with developing his ideas based on statistical physics and dynamical systems and experimentally demonstrating them in cells. A hallmark of Professor Youk’s work is that he selects important and highly complex biological problems that he then systematically deconstructs to extract fundamental design principles that underlie living systems, which are based on physical principles.

IUPAP YOUNG SCIENTIST PRIZES 2016 (Awarded in 2017)

IUPAP Young Scientist Prize in Biological Physics (C6)



Siyuan Wang

“For his significant contributions to the development of novel methods for imaging the spatial organization of chromatin and to advancing the understanding of chromosome organization using these methods and for his significant contributions to bacterial cytoskeleton and cell wall research.”

Dr. Siyuan Steven Wang did his PhD work 2008-2011 in Molecular Biology at Princeton University under the supervision of Professor Ned Wingreen and Professor Joshua Shaevitz where he studied the mechanics, dynamics and organization of the bacterial cytoskeleton and cell wall. His PhD thesis was honored with the Outstanding Doctoral Thesis Award in Biological Physics by the American Physical Society. Prior to his PhD period, he completed his undergraduate studies in Physics at Peking University under the supervision of Professor Qi Ouyang in 2007 with highest honors. In 2011, Dr. Wang moved to Prof. Xiaowei Zhuang’s lab at Harvard University to study chromosome structures in eukaryotic cells. He developed a ground-breaking imaging technology for tracing chromatin in individual chromosomes circumventing the image resolution problem and enabling 3D tracing of chromosomes. The application of this novel method in chromosome conformation and other studies lead to several publications in high-impact journals in addition to this technology breakthrough.

IUPAP YOUNG SCIENTIST PRIZES 2015 (Awarded in 2017)

IUPAP Young Scientist Prize in Biological Physics (C6)



Jiajie Diao

“For his significant contributions to the area of single-molecule biophysics. He pioneered the development of single vesicle fusion assays based on FRET, which enables addressing many fundamental questions about biological systems involving membranes.”

After finishing his undergraduate studies of Physics with the Master Degree from George Washington University in May 2005, Dr. Jiajie Diao moved to the University of Illinois at Urbana-Champaign. There, he started his PhD in Physics under the guidance of Professor Taekjip Ha and studied membrane fusion through single-particle biophysical fluorescent techniques. After completing his five years PhD study in December 2010, he joined the lab of Professor Axel T. Brunger, first as postdoctoral research associate and later as research specialist at Stanford University & HHMI where he further improved his outstanding publication record with more articles on his membrane fusion research in high-ranking journals. Since the end of 2015, Dr. Diao started to establish his own biophysical lab at the University of Cincinnati, College of Medicine where he is leading several projects that are aimed at understanding the fundamental principles of neurotransmitter release and the effect of neurodegeneration on this process.

UPCOMING SUPPORTED CONFERENCES 2017 (JULY - DECEMBER):

- **GIREP-ICPE-EPEC 2017 (GIREP 2017)**
3 – 7 July 2017, Dublin, Ireland
- **Conference on Computational Physics (CCP 2017)**
9 – 13 July 2017, Paris, France
- **International Conference on Phenomena in Ionized Gases (ICPI)**
9 – 14 July 2017, Lisbon
- **Edoardo Amaldi Conference on Gravitational Waves (AMALDI)**
9 – 14 July 2017, Pasadena, CA, USA
- **International Cosmic Ray Conference (ICRC)**
12 – 20 July 2017, Busan, South Korea
- **XV International Conference on Topics in Astroparticle and Underground Physics (TAUP 2017)**
25 – 29 July 2017, Sudbury, Canada
- **XXX International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**
26 July – 1 August 2017, Cairns, Australia
- **Joint Conference EP2DS22-MSS18: 22nd International Conference on Electronic Properties of Two Dimensional Systems and 18th International Conference on Modulated Semiconductor Structures (EP2DS22-MSS18)**
31 July – 4 August 2017, Pennsylvania State University, USA
- **XLVII International Symposium on Multiparticle Dynamics (ISMD2017)**
31 July – 4 August 2017, Tlaxcala, Mexico
- **International Symposium on Lepton Photon Interactions at High Energies (ISLPIHE)**
7 – 12 August 2017, Guangzhou, China
- **The 28th International Conference on Low Temperature Physics**
9 – 16 August 2017, Gothenburg, Sweden
- **ULT2017: Frontiers in Low Temperature Physics (ULT2017)**
17 – 21 August 2017, Heidelberg, Germany
- **24th IUCr Congress and General Assembly (IUCr C&GA)**
21 – 28 August 2017, Hyderabad, India
- **14th International Meeting on Ferroelectricity (IMF)**
3 – 8 September 2017, San Antonio Texas, USA
- **International Conference on Inertial Fusion and Science Applications (IFSA)**
11 – 15 September 2017, Saint Malo, France
- **18th International Conference on II-VI Compounds and Related Materials (IC-II-VI-RM 2017)**
24 – 29 September 2017, San Juan, USA
- **Laboratory and Synchrotron X-ray Crystallography: Applications to Emerging Countries (LSXC:AEC)**
9 – 20 October 2017, University of Ziguinchor, Senegal
- **XII Latin American Symposium on Nuclear Physics and Applications and the Workshop on Nuclear Physics and Nuclear Related Techniques (XII – LASNPA + WONP-NURT)**
23 – 27 October 2017, La Habana, Cuba
- **29th Texas Symposium on Relativistic Astrophysics (29-TEXAS)**
3 – 8 December 2017, Cape Town, South Africa
- **XVI International Workshop on Instabilities and Nonequilibrium Structures (IWINS 2017)**
4 – 8 December 2017, Viña del mar/Valparaíso, Chile

UPCOMING ENDORSED CONFERENCES 2017

- **EDISON'20: The 20th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON 20)**
16 – 21 July 2017, University of Buffalo
- **34th International Conference on the Physics of Semiconductors (ICPS2018)**
29 July – 3 August 2018, CNRS
- **35th International Conference on the Physics of Semiconductors (ICPS2020)**
8 – 14 August 2020, Australian Research Council Centre of Excellence for Quantum Computation and Communication Technology