



The Latin American Federation of Biophysical Societies (LAFeBS)

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Abstract

The Latin American Federation of Biophysical Societies (LAFeBS) was constituted in 2007 in Montevideo, Uruguay, as a collaborative effort among the Biophysical Societies of Argentina, Brazil, and Uruguay. This visionary collaboration foresees the future of Biophysics in Latin America. In this commentary, we will briefly review the history of LAFeBS, the remarkable path undertaken since its foundation 16 years ago, and its key initiative, the Latin American Postgraduate Program in Biophysics (POSLATAM).

Keywords Biophysics in Latin America · Historical note

LAFeBS foundation

The Latin American Federation of Biophysical Societies was constituted in 2007 in Montevideo-Uruguay as a joint initiative of the Biophysical Society of Argentina (SAB), the Brazilian Biophysical Society (SBBf) and the Biophysical Section of the Uruguayan Society of Biosciences (SBF.uy).

In 2005, Prof. Jorge Ponce Hornos, an IUPAB Council Member, presented a proposal to the SAB Council. His idea

was to invite the Brazilian and Uruguayan associations to discuss the formation of a Union or Federation of Biophysical Societies. This initiative sought to bring together the societies that had previously organized the Southern Cone Biophysical Congresses since 1987. At the Biophysical Society of Argentina Annual Meeting in 2005, Prof. Jorge Ponce Hornos and Dr. Silvia Alonso (SAB President-elected and Representative at IUPAB General Assembly) got together and wrote a first draft of LAFeBS Statutes in Spanish, based on IUPAB Statutes. During the next days (and months), there were intense discussions about whether it would be a Federation or a Union. Besides, some of LAFeBS cofounders: Dr. Jorge Ponce Hornos (IUPAB's Council Member, Argentina), Dr. J. Raúl Grigera (IUPAB Task Force on Capacity Building in Biophysics' Convenor, Argentina), Dr. F. Luis González Flecha (SAB's Secretary-General, Argentina), Dr. Silvia del V. Alonso (SAB's President-elected, Argentina), Dr. Marcelo M. Morales (SBBf's President, Brazil), and Dr. Eduardo Mizraji (SBF.uy's delegate, Uruguay) gathered to discuss the Foundational Assembly agenda and give its final format to LAFeBS Statutes proposal. The passing of Jorge Ponce Hornos in 2006 was a touching loss, but Prof. Raúl Grigera swiftly assumed the role and took charge in leading the establishment of LAFeBS.

Another relevant precedent in the consolidation of LAFeBS was the holding of the 5th Southern Cone Biophysical Congress (renamed in LAFeBS Foundational Assembly as 5th LAFeBS Congress) associated with the 6th International Conference of Biological Physics (International Union for Pure and Applied Physics—IUPAP),

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and the 36 Annual Meeting of the Biophysical Society of Argentina. This important international congress was held in Montevideo, Uruguay, from August 27 to 31, 2007, with Raúl Grigera as the Chairman and Eduardo Mizraji as the Co-Chairman. The participation of our community in such an important international conference served as testimony of the high level that Biophysics research had achieved in our Latin American region.

LAFéBS first General Assembly took place during this 2007 meeting with the participation of Jerson Lima Silva, Paulo Mascarello Bisch, and Marcelo Morales from Brazil; Mario Ermácora, Francisco Barrantes, Jorge Fischbarg, Horacio Garda, Luis González Flecha, and Silvia Alonso from Argentina; Eduardo Mizraji and José R. Sotelo from Uruguay; and David Naranjo from Chile. This Assembly decided to constitute the Latin American Federation of Biophysical Societies (LAFéBS), approved its Statutes, and elected the first Executive Committee formed by Raúl Grigera (President, Argentina), Eduardo Mizraji (General Secretary, Uruguay), and Paulo Bisch (Treasurer, Brazil).

Two of LAFéBS' cofounders, when asked about the meaning of LAFéBS and its implications, responded:

Marcelo M. Morales (SBBf President, Brazil, and IUPAB Past President): “With immense pride, I reflect on the successful establishment of LAFéBS (Latin American Federation of Biophysics Societies) during my tenure as the President of the Brazilian Biophysics Society (SBBf). Our shared mission to strengthen scientific cooperation and drive biophysics research in Latin America has yielded tangible benefits for all participating countries. Together, we have emphasized the importance of unity and fostered academic bonds that significantly advanced science in the region. Integrating biophysics researchers from historically allied countries through LAFéBS and its affiliation with POSLATAM (Latin American Graduate Program in Biophysics) has undeniably propelled scientific progress and resulted in substantial advantages for all involved. POSLATAM, which I had the honor of coordinating, represents the first regional initiative at the postgraduate level in Latin America in collaboration with the International Union for Pure and Applied Biophysics (IUPAB). With more than 250 students, including master's and Ph.D. candidates, from over 30 postgraduate programs associated with POSLATAM in Argentina, Brazil, Colombia, Uruguay, and Venezuela, the program has successfully sponsored thematic and annual courses, workshops, and conferences throughout Latin America. Furthermore, it has effectively engaged students from Africa, further amplifying its social and scientific impact and global reach.”

Eduardo Mizraji (LAFéBS first General Secretary) “Where did the Latin American Federation of Biophysical Societies (LAFéBS) originate? Perhaps we can affirm that its germ was generated in the mind of Professor J. Raúl Grigera, and that it materialized at Calle 59 N. 789 in the city of La Plata, Argentina, in the seminar room of the Institute of Physics of Liquids and Biological Systems (IFLySIB). This happened during a Workshop integrated by the Working Group for the Promotion of Education and Development of Biophysics, organized in an extraordinarily effective way by Prof. Grigera. This activity was carried out within the framework of the Task Force for Education and Capacity Building-IUPAB focused on this occasion on a Latin American Postgraduate Program. The Workshop was held between November 1 and 3, 2006, with the participation of S. Alonso, M. Estrada, A. M. Gennaro, F. L. González Flecha, B. Maggio, M. Mignoni, J. A. Ramírez, G. Roth and D. Valladares for Argentina, M. F. Colombo, M. Morales and K. C. Mundim for Brazil, D. Naranjo for Chile, R. Fayad for Colombia and E. Mizraji and J. R. Sotelo for Uruguay. Very quickly the training activities for postgraduate students began, harmonizing these regional activities to the format of each one of the universities involved. The evolution of this process was reported in 2014 (Morales and Alonso 2014).”

The Latin American Biophysical Societies involved in LAFéBS foundation

The Brazilian Society of Biophysics was created in 1936. Under the leadership of Professor Barbosa Vianna, 19 professors gathered at the School of Medicine of the University of Brazil, in Rio de Janeiro, with the aim of promoting meetings between students and researchers to discuss Biophysics through courses, conferences, and congresses. After a period of recess, the Society was reactivated in 1963 by Professor Carlos Chagas Filho and a group of collaborators from the Institute of Biophysics, in the former building of the National Faculty of Medicine, at the Universidade Federal do Rio de Janeiro (UFRJ), in Praia Vermelha. With the departure of Professor Chagas to France in 1965, occupying the post of Brazilian Ambassador to UNESCO, the Society became inactive. In 1975, a group of professors and graduate students from the Institute of Biophysics who had been transferred to the Centro de Ciências da Saúde (CCS) da UFRJ in Cidade Universitária, Ilha do Fundão, decided to reactivate the society under the acronym SBBf. The group had the consent of professor Chagas who, back at UFRJ, as Dean of the CCS, was elected president of the SBBf, by acclamation, for the 1976–1977 biennium. The 1st meeting

of the Society was held in December 1976, at the UFRJ CCS. In 1977, the SBBf joined the International Union for Pure and Applied Biophysics (IUPAB) through Richard Keynes, its General Secretary. In 2021, the IUPAB International Congress of Biophysics was organized by SBBf and was held on-line because of the COVID pandemic.

The Biophysical Society of Argentina (SAB) was constituted in 1972, following the initiative of Prof. Mario Parisi, with the purpose of “...a) bringing together those who carry out original research in the field of Biophysics; b) promote the advancement of Biophysics; c) tend to link with similar entities...”, being the first President Prof. Marcelino Cerejido. The same year of its constitution, the IUPAB General Assembly approved the incorporation of SAB as Adhering Body. Professor Patricio Garrahan played a prominent role as one of the most engaged SAB members in international relations, becoming the first Latin American member of the IUPAB Council. During the last 50 years, the Biophysical Society of Argentina organized Annual National Meetings, only interrupted in 2020 by the COVID pandemic, and several International meetings including the 2002 IUPAB Congress in Buenos Aires. One of the most significant initiatives of SAB was the establishment of the Latin American School of Biophysics (ELAB) in 1984, pioneered by Professor J. Raúl Grigera. This visionary endeavor paved the way for the establishment of the “Latin American Postgraduate Program in Biophysics” (POSLATAM) in 2006, with Raúl Grigera again taking the lead in this significant effort. In 2005, Prof. Jorge Ponce Hornos proposed to create a Union or Federation of Biophysical Societies of the Latin American Southern Cone. This initiative was approved by the 2005 SAB General Assembly, and joined by the Brazilian Biophysical Society and the Biophysics Branch of the Uruguayan Society of Biosciences.

In Uruguay, the Biophysical Section (SBF.uy) is a branch of the Uruguayan Society of Biosciences (SUB). The SUB was created in 1982 as an area in which not only active scientists participated but also those who had lost their posts because of the military government (which broke the democratic normality in Uruguay between 1973 and 1984, as it happened in all our region with small differences in dates). In that context, the formal founding of the SUB took many months, having begun the process of this creation the previous year. In fact, during an International Biophysics School that took place in 1981 in Oaxtepec, Mexico, Prof. Kurt Wüthrich, then IUPAB's president, suggested to Eduardo Mizraji the possible creation of a specific structure for Biophysics within the SUB, once it formally began its activities. In this way, the Uruguayan biophysicists could be framed within IUPAB avoiding the authorization of the government

of that time. Thus, shortly after the installation of the SUB authorities, the SBF was created.

Aims and function of the Federation

The goals of LAFéBS are to develop the basis for a more permanent interrelation between the Latin American Biophysical and related Societies, and to promote regional development and human resources formation in Biophysics from the undergraduate to the post-doctoral level. For this, LAFéBS will carry out the following actions:

- a) To organize regional co-operation in Biophysics and to promote communication between the various areas of Biophysics and related disciplines.
- b) To encourage within each adhering body co-operation between societies that represent the interests of Biophysics.
- c) To enhance the regional contributions to the advancement of Biophysics in all its aspects.
- d) To set up commissions or other bodies for special purposes.
- e) To generate appropriate procedures to promote an academic network for postgraduate education in the region.
- f) To organize periodical meetings, workshops, and conferences related to the Latin American activities in Biophysics.
- g) To collaborate with other scientific organizations in Biophysics and related disciplines.
- h) To develop any activity deemed helpful to the advancement of its declared objectives.

Today, LAFéBS is constituted of full members from Argentina, Brazil, Uruguay, Chile, Venezuela, Spain, Portugal, and Cuba and observer-members from Colombia, Mexico, and Dominican Republic. The executive body of the General Assembly is the Council, which is composed by the Officers of the Federation (a President, a Past President, a Secretary, and a Treasurer), Council members, and Observer members.

Current Officers of LAFéBS are R. Daniel Peluffo (President, Uruguay), Pietro Ciancaglini (Past President, Brazil), F. Luis González Flecha (General Secretary, Argentina), and Silvia del V. Alonso (Treasurer, Argentina). Council members are Axel Hollmann (Argentina), Karina Allea (Argentina), Rosangela Itri (Brazil), Leandro Barbosa (Brazil), Carlos Álvarez (Cuba), Jesús Pérez Gil (Spain), Manuel Prieto (Portugal), Leonel Malacrida (Uruguay), and Cesar Ramírez Sarmiento (Chile). Observer members are Alfonso Leyva Rojas (Colombia), Carlos Muñoz Garay (Mexico), and Laura V. Sánchez-Vincitore (Dominican Republic).

Since its foundation in 2007, Presidents of LAFBS were J. Raúl Grigera, Marcelo Morales, Silvia del V. Alonso, Pietro Ciancaglini, R. Daniel Peluffo, and F. Luis Gonzalez Flecha (elected).

The Latin American Postgraduate Program in Biophysics (POSLATAM)

The lack of specialized postgraduate programs in the developing Countries is one of the elements that go against the quality of higher education and their progress in the growth of available human resources in science and technology, with the consequent deterioration in basic education. This has been one of the main concerns of IUPAB's Task Force on Capacity Building. In 2006 Prof. J. Raúl Grigera (then convenor of this Task Force) organized a workshop at the Institute of Physics of Liquids and Biological Systems (IFLySIB), La Plata, Argentina, to discuss this problem and elaborate a proposal for a Latin American Program to be presented to IUPAB Council for its approval.

Prof. Grigera invited to this workshop Prof. Silvia Alonso (Universidad Nacional de Quilmes, Argentina), Marcio F. Colombo (Universidade Estadual Paulista, Brasil), Ramon Fayad (Universidad del Rosario, Colombia), Ana María Gennaro (Universidad Nacional del Litoral, Argentina), F. Luis González Flecha (Universidad de Buenos Aires, Argentina), Bruno Maggio (Universidad Nacional de Córdoba, Argentina), Eduardo Mizraji (Universidad de la República, Uruguay), Marcelo M. Morales (Universidade Federal do Rio de Janeiro, Brazil), Kleber C. Mundim (Universidade de Brasília, Brazil), David Naranjo (Universidad de Valparaíso, Chile), José R. Sotelo (Instituto de Investigaciones Biológicas Clemente Estable, Uruguay), Mario Estrada (Universidad Nacional de San Luis, Argentina), Ricardo Migoni (Universidad Nacional de Rosario, Argentina), Diego Valladares (Universidad Nacional de San Luis, Argentina), German Roth (Universidad Nacional de Córdoba, Argentina), and José Antonio Ramírez (Universidad Nacional de San Luis, Argentina).

During this workshop, it was acknowledged that Latin America comprises Countries with comparable capacities in Biophysics. However, no individual Country alone could adequately meet all the requirements for postgraduate education in Biophysics. Besides, by integrating less developed Countries in the region, there is an opportunity to offer assistance and substantial support, fostering the enhancement of their capabilities.

The basic strategy of the Program—that has been the basic idea from the beginning of the IUPAB Task Force on Capacity Building—is first of all to use the closest available resources (Grigera 2006). This requires a careful survey of such resources in each of the participating Countries, and even in each of the

internal regions (States, Provinces, Departments). In this way, the Program would provide students with the possibility to complete their postgraduate studies within their Country of origin, or at least, within the region in which facilities and difficulties are comparable to those in their Country. This training, which should be of the highest possible academic level, would teach the future scientists how to perform good science with the available resources. The access to postgraduate studies in Biophysics should be possible for graduates of Physics, Chemistry, Biochemistry, or any other area, provided they have a good basic formation on at least one of the mentioned disciplines. Since not all applicants have the same background, it would be necessary to establish courses that allow them to reach the same level, so that at the beginning of their postgraduate studies all would have an equivalent level of formation. It is highly likely that these knowledge leveling courses can be conducted either at the Universities of origin, or nowadays, utilizing the virtual platforms that have become available due to the COVID pandemic. The courses should be defined for each particular case by a Special Committee, which should analyze the applicant's previous background and propose the content of the necessary courses. All academic plans should take into account the human resources available in the Region, trying always to supply the needs with the Institutions of excellence closest (geographically or economically) to the applicant's place of origin. Once the candidate is accepted into the Program, he/she would be assigned a particular plan of courses, seminars and experimental work by a Special Committee—which may or may not be the same that has fixed the knowledge leveling course. This would be done in accordance with the candidate's interests and the available facilities, but under the unyielding condition of keeping an academic level appropriate to the postgraduate studies pursued—Masters or PhD—(Grigera 2006).

The first POSLATAM course was held in La Plata, Argentina in 2008 with the assistance of 56 students from Argentina and Brazil. It was followed by courses in Buzios, Rio de Janeiro and Campinas (Brazil), Buenos Aires and Tucumán (Argentina), Salto (Uruguay), Lima (Peru), and Varadero (Cuba).

Since its creation in 2006, the POSLATAM Program has served as a significant catalyst for the advancement of Latin American Biophysics. Furthermore, it sought to establish a network that facilitates the academic mobility of postgraduate students and professors between participating institutions, and allowed to enhance access to leading centers of excellence in Biophysics across Latin America.

Concluding remarks

The Latin American Federation of Biophysical Societies was created 16 years ago by a group of biophysicists representing the Biophysical Societies of Argentina, Brazil,

and Uruguay. In its conception, it was recognized that the regional resources in Biophysics were highly complementary, making Latin America, as a region, more competitive in the world context than the mere sum of each isolated Country's capabilities. Additionally, it was noticed that the exchange of students and researchers within the region was relatively limited compared to that between each individual Country and more developed Countries (USA and Europe).

Since its inception, LAFéBS has been a milestone in fostering cooperative activities among Latin American countries within the field of Biophysics. LAFéBS congresses have been organized every 3–4 years, and the participation of students from Countries other than those of the organizers has been promoted and facilitated through IUPAB fellowships. POSLATAM courses, conducted as satellite events of the regional congresses, have brought together students from diverse Countries within the Region, fostering extensive engagement in discussions aimed at aligning scientific excellence with the developmental needs of our Countries. Moreover, this network has attracted returning postdoctoral scholars, enriching it with fresh insights and research areas, spanning from systems biophysics to single-molecule biophysics.

Last year, when the Argentine Biophysical Society was celebrating its 50th anniversary (Alonso and González Flecha 2023), its President, Dr. Jose M. Delfino, described Argentina's Biophysics current situation in terms that can be extended to all the Latin American region: "In 1990 Gregorio Weber published a prologue article entitled *Whither biophysics?* (Weber 1990). Instead of delving into his autobiography, the eminent biophysicist chose to express his personal views of the state of affairs of the discipline at that time. Those views hold as true today as when they were written. At the end of that article, he reflected on the complexities associated with macroscopic thermodynamics and the microscopic molecular explanations of biological systems. We cannot but agree with his cautious optimism in foreseeing the auspicious meeting of the system and molecular worlds."

Over the past 16 years, significant strides have been taken towards strengthening regional collaboration among Latin American biophysicists. However, there is still a lot of work ahead, and the challenges are ever-expanding. Future tasks include incorporating new Countries to LAFéBS, intensifying collaborative efforts, enhancing the impact of the POSLATAM Program, and refining regional academic mobility initiatives for researchers at all stages of their careers.

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Declarations

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References

- Alonso SdV, González Flecha FL (2023) Fifty years of biophysics in Argentina. *Biophys Rev.* <https://doi.org/10.1007/s12551-023-01114-0>
- Grigera JR (2006) The Latin American Postgraduate Program of Biophysics (POSLATAM). Draft resolution presented at the International Union for Pure and Applied Biophysics General Assembly
- Morales MM, Alonso SdV (2014) Successful Latin American initiatives in biophysics. *Biophys Rev* 6:1–2. <https://doi.org/10.1007/s12551-014-0139-1>
- Weber G (1990) *Whither Biophysics?* *Annu Rev Biophys Biophys Chem* 19:1–8. <https://doi.org/10.1146/annurev.bb.19.060190.000245>

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