

Al Decano del Dipartimento di Fisica, Prof. L. Colombo

Alla Commissione Elettorale del Dipartimento di Fisica, Prof. P. Ruggerone, Dott.ssa V. Demontis, Dott.ssa G. Secci

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Program for the Election to the Position of Director of the Physics Department– M Saba

The Physics Department ambition for achieving excellence and international relevance in research will face extraordinary challenges in the 2024-2027 triennium. These challenges will determine the competitiveness level of our activities for at least a decade in the future:

- Participation in PRIN projects over the next two years will significantly surpass the historical average in terms of the number of projects and funding amounts. This will require a substantial increase in procurement requests, timely payments, recruitment notices, reimbursement for mission expenses, and reporting.
- The extended partnerships and innovation ecosystems of the PNRR have initiated a large-scale recruitment effort and improvement of research infrastructures, which will be completed by 2026. These actions have increased the Department's academic personnel to its historical maximum. Despite the presence of dedicated staff in central university structures, PNRR-related activities have produced and will continue to produce a significant increase in administrative work, ranging from service-related practices, reviewing space usage, and requests for services tailored to new research needs, new laboratories, and new computational infrastructures.
- Participation in the ETIC project for the Italian preparation for the Einstein Telescope involves installing entirely new laboratories and engaging in research activities in conjunction with the INFN section in Cagliari. This requires an extensive redistribution of hundreds of square meters of the Department's laboratory space and necessary infrastructural adjustments to be completed with strict deadlines.
- Participation in the Research Quality Assessment (VQR) exercise for 2020-2024 will determine whether we can present a project for an excellence department, significantly expanding our research capabilities. This requires substantial and careful work to identify scientific publications for evaluation and potentially draft an expansion project. The VQR exercise will also involve third mission initiatives, potentially broadening the evaluation scope.

These new situations and needs, combined with managing traditionally assigned activities, demand a much higher administrative workload. Despite long-standing competent and effective administration, the current technical-administrative staff is insufficient for these increased needs.

It is therefore urgent and necessary to request the Directorate of Personnel and the General Directorate for an increase in administrative staff at the Department, establishing an appropriate staffing plan for the new tasks. Additionally, administrative efficiency must be improved by continuing the systematic review, streamlining procedures, and digitalizing, automating, and reducing the time needed for administrative tasks.

In this administrative and managerial emergency, academic staff must be available for managerial roles commensurate with their skills and positions, collaborating to ensure the success of extraordinary activities and all regular activities traditionally entrusted to the Department, focusing on effectively integrating their work with technical and administrative staff. The willingness of colleague Matteo Ceccarelli to be nominated to the Rector as Deputy Director is greatly appreciated. The composition of committees should follow representation criteria, especially for the Programming Committee and the Teaching Committee, which have played a political proposal role in recent years. Consequently, the scientific-disciplinary groups within the Department will be asked to propose nominations. In assigning roles, representation will be combined with competence criteria, ensuring that all competitive sectors, roles, and overall departmental components participate in management processes while maintaining effective management.

Achieving research excellence also involves continuing the successful academic recruitment program the Department has undertaken in recent years, with a timeframe beyond the mandates of the temporary Directors. The goal is to continue distributing resources across various sectors, as required by the Department's generalist mission, while focusing on emerging research themes to ensure international competitiveness in scientific production and funding. Recruiting decisions have long-term impacts on the Department, so it is crucial that these decisions are made by a representative Programming Committee and agreed upon after broad discussions, considering different viewpoints and fostering a climate of mutual recognition and sharing among colleagues.

The Council may also discuss strengthening the Advisory Committee's role to provide structured guidance on research activities' results and prospects and generally pursue excellence goals, bringing an authoritative, external, and independent viewpoint from internal Department dynamics through a more structured and demanding review process.

The success of the Department's research activities depends on the proper functioning of infrastructures and common services, such as air conditioning, cleaning, electricity supply, regular maintenance, and prompt repairs, availability of the workshop, and effective IT services. Recognizing the importance of these issues, the Department has allocated material and human resources to address each point. However, there is an ongoing problem with ineffective interaction with the Investment, Maintenance, and Sustainability Directorate, causing delays in ordinary and extraordinary maintenance work. These issues result in the loss of numerous workdays annually and reduce the Department's scientific productivity. This problem must be addressed by agreeing on new organizational solutions with the Directorate and the University. As with administrative management actions, the general goal for infrastructure management actions should be to maximize scientific productivity and create the best conditions for academic staff to succeed.

The Physics Department also plays a role in enhancing collaboration with national research entities, particularly the local sections of INFN and CNR, housed in the same building, and INAF, located nearby. These entities, with their excellent research activities, represent a tremendous cultural asset, and there is a clear mutual interest in maintaining deep integration of research activities, teaching, and third mission activities.

Since the implementation of the Gelmini reform, the Department's responsibilities include managing teaching activities, pursuing the ambitious goal of providing training in line with the best international standards in the Bachelor's and Master's Degrees in Physics, all undergraduate teaching classes for other degrees, the Doctorate in Physics, and the School of Specialization in Medical Physics. In this context, the Department has undertaken a review of the distribution of teaching assignments based on competence, rotation, and workload balancing principles, a procedure that should be continued. To make teaching more productive in a regime of periodic rotations and frequent integration of new teachers, it is important to initiate a structured program for sharing best practices, complementing university-provided training courses with specific tools for physics teaching, such as creating shared databases of exercises and lessons or catalogs of classroom demonstrators and laboratory experiments. Finally, it is important to provide students attending the Department's facilities with spaces, furnishings, and services that make the premises more welcoming and suitable for all-day stays.

The third-level teaching activities anchored in the Department, namely the Doctorate in Physics and the School of Specialization in Medical Physics, are also undergoing significant changes and expansion. For the Doctorate, additional scholarships on PNRR themes and in collaboration with companies represent an opportunity for substantial resource increase but also risk penalizing fundamental research activities that have mostly been the subject of doctoral theses so far. Additionally, the Department must manage participation in national Doctorates, seizing opportunities from inter-university collaboration networks while ensuring sufficient resources to maintain a strong local Doctorate capable of attracting top graduates worldwide.

Regarding the Medical Physics School, healthcare companies, hospitals, and the broader labor market express a growing demand for highly qualified personnel with physics expertise applied to medicine. To meet this demand, it is necessary to strengthen the Medical Physics School by recruiting academic staff to contribute to teaching, securing a sufficient number of annual scholarships, and carrying out extensive orientation to guide more graduates toward a career as medical physicists.

The Department is also entrusted with third mission activities, currently experiencing significant changes and opportunities. The Scientific Degree Project activities have been refinanced for a new cycle, requiring continuous commitment. The organization of Open Days has exceeded ten years of activity, achieving significant success suggesting continued commitment. The Physics Museum is now conceived as a communication tool for the general public and an orientation tool for young people and school groups who visit regularly. However, the Museum's utilization is limited by the availability of academic staff, administrative staff, and guides for public reception and tours. In the next three years, the University plans an ambitious project to consolidate the Museums into a single location, staffed and open to the public during regular hours. Given the importance of the Physics Museum, the Department must collaborate on this University project and internally enhance physics-related communication activities.

The Department must also promote technology transfer actions, fostering collaborations with companies and entities interested in exploiting academic research results, encouraging the protection of intellectual property, and supporting the creation and activity of spin-offs involving Department staff.

Overall, for all third mission activities, the current administrative support is inadequate for the desired service level. It is necessary to discuss a reorganization of activities with the Directorate of Education,

the Directorate of Personnel, the Research and Territory Directorate, and the General Directorate to enable more effective service delivery.

As awareness regarding inclusion evolves, it becomes increasingly important to ensure the Department is an inclusive and welcoming place to work and study. Regarding gender balance, the Physics Department still has a long way to go to achieve parity between women and men, given the very small number of female researchers and professors among the academic staff and the complete absence of first-rank female professors. Legal constraints prevent positive and direct intervention in competitive sectors by creating positions specifically for female researchers and professors, but they do not exempt us from the responsibility to promote and encourage colleagues' careers.

Michele Saba