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European Physical Society[®]

Europhysics News is the journal of the European Physical Society that acts through Divisions, Sections and Groups to promote collaboration among physicists. Subscription price: SFR 135.– per annum.

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Advertising is charged according to space, on a sliding scale ranging from SFR 2700.– for a full page to SFR 700.– for a one-sixth page. Rates for four-colour and cover advertising, and series insertions, on application. Special rates for Associate Members of EPS; 25% reduction for announcements of situations vacant.

Deadline for advertising orders: first week of month of publication.

Subscriptions & EPS Fees:

Société de Banque Suisse,
Geneva; Acc. No. 164.899
Swiss Post Office Acc.: CCP
Geneva 12-19107-4
German Post Office Acc.: Postbank
Karlsruhe 1801-30-754
Eurocheque to EPS, Geneva

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Cover illustration

Enhanced nuclear binding in magic nuclei. The macroscopic-microscopic model is used to compare the measured properties of exotic nuclear with theoretical estimates. The illustration plots calculated values of microscopic shell corrections as a function of the proton number Z and the neutron number N for the ground-state masses of nuclei with $N < 100$. The energy (or mass) corrections are colour coded from +6 MeV (red) through to -10 MeV (violet). Nuclei in the region near the ^{100}Sn doubly magic $N = Z = 50$ nucleus are predicted to have large, negative correction energies. [From P. Möller et al., Atomic & Nuclear Data Tables, to be published]. See E. Roeckl, p. 48.

Professional Qualification Launched

The decision by the Council of EPS to launch a professional qualification aims to enhance the status of physicists.

The Council of EPS at its meeting in Cracow on 25/26 March agreed with a proposal put forward by a working group to launch a professional qualification in physics. If they fulfill certain requirements relating to education, training and experience, successful applicants may use the title *European Physicist* (*Eur Phys* for short) subject to a review every five years.



Norbert Kroó, the EPS President (centre), and Herwig Schopper, the President-Elect (on the left), with Derek Jefferies who chaired the group that prepared the Council proposal for a European qualification in physics.

The qualification will have a direct impact in some areas, notably applied fields such as medical physics where people often need recognition of their competence as physicists in addition to what is provided by an academic title. It is expected that the scheme will enhance the Society's visibility and improve the status of a physicist in a given field. The process of unification of Europe is tending to increase the importance of professional qualifications as they help ensure the free movement of scientists and general recognition of their competence. Indeed, officials of the European Commission have already expressed positive interest in the Society's initiative, which comes at a time when other disciplines in science are in the process of setting up their own qualification procedures.

The Executive Committee was authorised by Council to implement the scheme by establishing the Commission that will maintain the *Register of European Physicists*. Council will review progress after three years to see if any fundamental changes are needed. It is envisaged that the working group will be expanded to form the Register Commission which will then specify its needs. National societies collaborating in the scheme will help in the distribution this autumn of application forms and guidance notes detailing the requirements and conditions, so we can expect the first *Eur Phys* to be awarded in 1995.

N. Kroó, EPS President

EUR PHYS

Recognizing Fundamentals

Someone who is adequately educated and trained as a physicist and has been working as one will soon be able to become a *European Physicist*. The requirements will be straightforward and the procedure simple. The qualification will enhance the status of physicists, although the perceived extent varies depending upon the viewpoint. Most agree that formal recognition by the physics community as a *Eur Phys* will be in-

valuable to colleagues employed in specific areas connected to offering services to the public and to government. Herwig Schopper, the immediate Past-President of the German Physical Society and the President-Elect of EPS, feels that most physicists understand the need to support the scheme. They hopefully see the potential for its development, especially with regard to young people seeking interdisciplinary work in industry operating throughout Europe who might be at a disadvantage compared with say formally recognized engineers.

It would be unfortunate if the initiative becomes bogged down in the somewhat bureaucratic perspective of formal recognition by industry and government of competence, for a professional qualification in physics should increasingly attract young people to the whole of physics. This is important because young people are clearly conscious of perceived limitations in physics. Paul Hoyer, President of the Finnish Physical Society, notes that they are being drawn more and more to technical universities or departments training engineering physicists — an evolution which has reached a point that according to Carlos Ferreira, Secretary-General of the Portuguese Physical Society, his country is considering setting up a section for engineering physicists within the Order that regulates the engineering profession.

Anchoring Points

Helping the whole of physics attract young people is vital because the issues at stake are wide and deep. First, *Eur Phys* places value on what we call physics. This is not trivial because one has to understand that in our technically, socially and economically complicated world, many doubt that physicists used to reducing Nature and problems to their fundamentals can be entrusted with managing and analyzing the growing number of sophisticated tasks. It questions whether a community which has the remarkable ability to speak with one voice across a broad range of issues, from social behaviour to fundamental particles, is truly able to tackle complex problems in a society that increasingly values specialization. So the paradox is that the strength of physics is also seen as its weakness.

The shoe is now on the other foot: society once expected individuals who opened their doors to offer professional services in law,

engineering, medicine and elsewhere to be officially recognized by a legal body authorized to regulate their activities. Society now wants to know if an individual is demonstrably competent in a given area before it opens its own doors in a growing number of areas involving security, safety, health, education, and insurance, to name but a few.

Physics would be naive to ignore such sentiments. It has the means to react. Physics is by nature reductionist — it aims to develop an esprit, a viewpoint, based on analyzing the world and nature in terms of underlying quantitative concepts. While these apparently effortless simplifications are the source of unease for many, they provide remarkably powerful paradigms for progressing understanding and technology; without them much of what we take for granted — from electric light to aeroplane reservations — would be impossible. The result is that physicists work across a broad range of fields, tackling everything from enormous astronomical systems to the nature of the vacuum. They do this by having a unique perspective on Nature, a solid analytical grounding, relatively strong mathematical and analytical skills, an intuitive feeling of how to apply formalism to our messy world, a close familiarity with interdisciplinary problems, and in many cases experience with collaborating across laboratories, large experimental facilities, and national borders. The community's work is open to all comers and every scrutiny; it is judged on a truly global scale. So physicists are able to provide security and confidence in science and technology, by defining strong anchoring points with which to pin down those elusive phenomena and complexities that are known to confuse and disturb many people.

Different Routes

The scheme will also help to attract young people into the whole of physics by telling them that the harsh realities of modern life are not being ignored. For it recognizes that many people now arrive by different routes to a point which make them competent to practice as physicists in a variety of essential contexts. In so doing it recognizes the very real fact that society is becoming much more complicated, with people learning, training and working in an increasingly wider variety of rôles.

When the community recognizes one of its members as a *European Physicist* it is therefore attempting to say that the person represents some fundamental values and can live up to some of society's expectations. The stakes are therefore not microeconomic but go to the very heart of what physics tries to contribute. The professional qualification *Eur Phys* ought not be sidelined into those areas where formal requirements are the greatest; it should be adopted vigorously by the entire community as a living symbol of where it stands and where it is going.

Sponsors Needed

The Register Commission — the EPS body responsible for maintaining the *Register of European Physicists* — will appreciate once it is constituted that it needs hard work to establish whether the necessary high standards are met by applicants who have studied, worked and trained in different parts of Europe. The plan is to involve experts who

have an excellent knowledge of both local conditions and the international context. Procedures will be decentralised to minimize costs (the application fee will not exceed SFR 50.—), and the registration fee will cover essential expenses, promotion and eventually maybe special activities.

Moreover, unlike an academic qualification which remains valid for ever as a testament of what was learnt and achieved, a professional qualification is placed in the context of today's society and an individual's competence in performing to its expectations. So reevaluation of the individual is essential, along with continuous appraisal of the status of the qualification relative to external requirements such as European Union Directives on employment conditions. Thus, there will be renewal every five years, with the annual fee to remain on the Register being reduced progressively from SFR 50.— *per annum* for the first five-year period.

The Society is seeking general support for promoting the scheme from European agencies, government bodies, industrial and employee federations, and others, but it will probably only come once physicists have demonstrated their commitment. EPS is conscious, however, that the fees will be prohibitive for some. Companies and organizations based in western Europe could perhaps consider sponsoring, for at least the first five years, collaborators or colleagues based in east and central Europe as this would represent tangible evidence of how physics sees its future.

P.G. Boswell
Member, EPS Working Group
on Professional Qualifications

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