

From physics to the marketplace: Special issue overview

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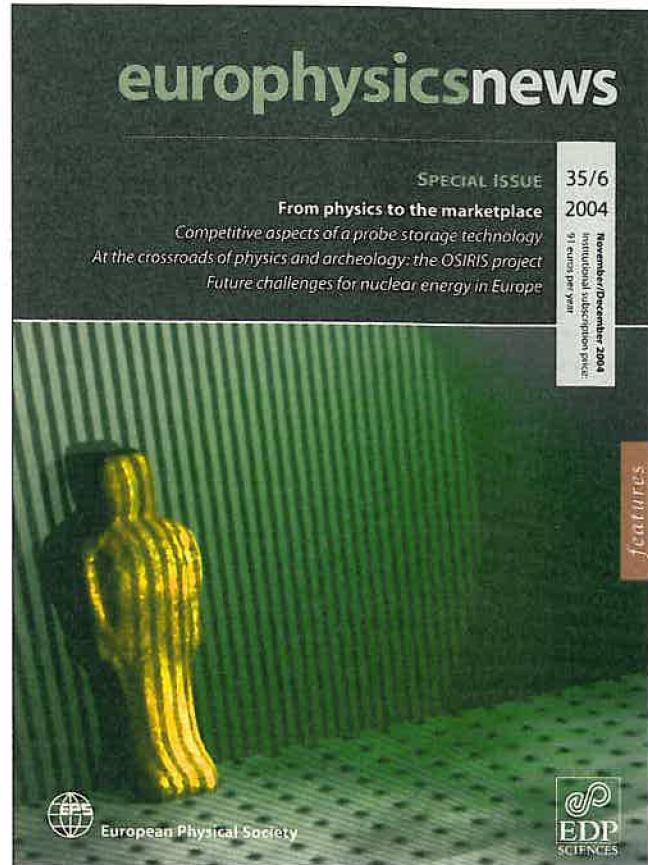
Basic Science does not usually have immediate benefits for industry or the economic world in general, and delays in visible return are often difficult to reconcile with the short-term expectations of market driven activities.

Times have changed and there is nowadays a justified need for a closer connection and an improved exchange of knowledge between academia and industry. Society at large also supports the view that basic science findings should be put to use where appropriate and without delay. During the last twenty years the jobs that have been generated by new ventures have injected extra liquidity into the labour market. Since the early 1970s, academic institutes and their Technology Transfer structure schemes (Technology Exploitation Office, Incubator, Science and Technology Park, etc.) have been supporting young entrepreneurs. If this is very much the case for biomedical and pharmaceutical research, physicists have shown some reluctance to foster a widespread entrepreneurial attitude throughout their community. The reasons are twofold:

1. The linear model of transfer from basic science to technology very seldom applies for physics;
2. Physicists still see the patent system as impairing the free exchange of knowledge they have enjoyed ever since universities were created.

Technology bridges the gap between academia and industry and it is often intimately mixed with basic science and education. Technologists have in general a better literacy in Intellectual Property Rights (IPR) for they are more exposed to the free market economy. In addition, the patent system nowadays is less regarded by scientists as a tool to disclose trivial inventions such as "better mouse traps" or new types of barbed wire, and market prone developments are no longer readily published without analysing their market potential. It is better accepted that a "patent or perish culture" does not necessarily affect the open and free exchange of information in basic science. The proof of this can be found in the USA, where universities have long practiced proactive IPR policies without impairing com-

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munication with other academic and R&D institutes in the world.

With this special issue of EPN, the European Physical Society aims to trigger more reports on the application of physics related technologies in the market. The contributions appearing in this issue have been selected to give an overview of technology transfer methods and processes in physics. If the first contribution shows how, 150 years ago, Lord Kelvin fruitfully bridged the needs of science and industry, all other papers present recent cases and are practical examples of the formal presentation appearing on the Technology Group web site <http://www.eps.org/divisions/techgroup.html>. The paper on the application of biomechanics to the design of a new mouse, somewhat remote from us, was chosen on purpose to illustrate an example of a "spill-over" process.

It remains that competition in the search for private sources of funding can significantly divert the scientific community from its basic mission. I am convinced that basic science should not be market-driven and that scientific policy makers should fund it adequately. This dilemma is clearly implied by the last paper in this issue that discusses the problems society, science and industry will face with energy production in the coming decades.

To conclude, I would like to hope that this issue will contribute at its level to the shortening of the time elapsed from the moment when a relevant research result is found and established, until it is actually applied in the marketplace. To this end, industry should be better informed of the latest achievements in physics, and of those instruments and procedures that are likely to find an application in the development of products for the marketplace.