



#### cover image

X-ray image of a human skull (CNRI/SPL); discharging fuel from a reactor core to cooling ponds at a nuclear power station (A. Bertrand/SPL); laser beams in the atomic vapour laser isotope separation system (Lawrence Livermore National Laboratory/Univ. California/SPL); DNA molecule (K. Seddon, T. Evans, Queen's Univ. Belfast/SPL); Professor Harold Kroto, sitting amongst models of fullerenes (G. Tomkinson/SPL).

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## A celebration of physics

The 100th anniversary of the American Physical Society, which will be celebrated this year, is a fitting occasion to look back over the past century of physics. And what a century it has been. To some, twentieth-century physics will be remembered largely for the advent of the theories of relativity and quantum mechanics, which still underlie most of modern physics. But significant though these theories undoubtedly are, to focus on these two issues alone does not do justice to the revolution in physical thought that continues to the present day, as is amply clear from Frank Wilczek's introductory overview on pages 4 and 5. Moreover, no physical system is outside the physicist's realm, and the application of the principles of physics has led to breakthroughs of both a fundamental and a technological nature in fields as diverse as astronomy, chemistry and even biology.

The aim of this collection is to celebrate the ingenuity and diversity of physics, and its ability to stimulate other disciplines, as reported through the pages of *Nature*. For the early discoveries and inventions, we have the benefit of hindsight. A finding that, at the turn of the century, may have seemed little more than a curiosity might have taken on a significant new role in the light of the developments that it subsequently inspired. But such developments can often take years, even decades, to materialize, so we at *Nature* cannot claim that the contributions that conclude this collection will one day be viewed in a light similar to their now-famous predecessors. Rather, we have chosen them to illustrate some of the exciting intellectual avenues that physicists continue to explore, while holding out the possibility – little more than a guess on our part – that with time their significance will be recognized.

Furthermore, the collection is not intended to be comprehensive: with well over a century's worth of material to choose from, the volume of candidate papers for inclusion far exceeds the scope of several such collections. And this means that some difficult choices have had to be made. We wanted, for example, to include the discovery of the Zeeman effect (*Nature* 55, 347; 1897), the  $\pi$ -meson (*Nature* 159, 694–697; 1947) and a selection of the many insightful comments published by Bohr on the burning scientific issues of his day. Regrettably, space limitations prevented their inclusion.

But we do hope that those papers that we have included – many of which you will probably be seeing for the first time – will help to convey something of the excitement that has accompanied the past century of physics.

#### Philip Campbell

Editor, *Nature*

#### A celebration of physics

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