



► COVER: Design by George Marshall

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Nature Milestones are special supplements that aim to highlight the 'milestones' or remarkable achievements in a given field. Each breakthrough is covered in a short Milestone article, written by an editor from the Nature Publishing Group, which discusses landmark discoveries in the context of the prevailing concepts at the time and our current knowledge of the field.

Nature Milestones: Photons is the tenth supplement in the series. It comes 50 years after Theodore Maiman realized, on 16 May 1960, the first laser. But *Nature Milestones: Photons* intends to reach far beyond Maiman's breakthrough, beginning with early systematic descriptions of light since the 17th century. Still, much of the fundamental understanding of light that we have today is based on its description as an electromagnetic wave, and that it comes in basic 'units' — photons.

The study of photons has not only fostered fundamental scientific advances, but has also led to important applications. The laser is among them, but there are many more. With this collection we want to give a taste of this rich history. Obviously, it is impossible for a collection such as this to do justice to all of the influential developments in this field. Instead, with the help of our advisors, we have selected 23 topics that as a collective highlight where the study of light has taken us so far and that provide a taste of what developments we might expect in the future. We have sought, in particular, to bring out the breadth of areas touched: from the foundation of quantum physics to modern telecommunication. Inevitably, many more topics must remain unmentioned: the photoelectric effect, laser cooling, synchrotron radiation, various spectroscopy, sensing and imaging techniques — to name but a few. But a selection had to be made, and we hope that *Nature Milestones: Photons* will prove an enriching reflection on the history of the field, and one that inspires further reading.

Scientific discoveries are not, for the most part, achieved in single discrete steps. Rather they involve the work of many, and the fusion of ideas, concepts and experimental evidence to arrive at general acceptance. Therefore these articles are by no means intended to offer comprehensive coverage of a particular discovery. They aim instead to highlight a few key papers and to convey a historical perspective on how a particular idea evolved.

In addition to the Milestone articles, the supplement includes a Timeline — a chronology of the earliest papers connected with each Milestone — and a reprinted Collection of relevant articles and selected reviews from *Nature* and *Nature Physics*. The Milestones web site also includes an extensive Library of material from the across the Nature Publishing Group.

Finally, we would like to extend our sincere thanks to the advisors and to acknowledge support from our sponsor, the Max Planck Institute of Quantum Optics. As always, Nature Publishing Group takes complete responsibility for the editorial content.

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