



HRL

## COVER IMAGE

Ted maiman at Hughes Research Laboratories surrounded by the parts of the first laser — a flashlamp-pumped ruby design.

## NPG ASIA-PACIFIC

Chiyoda Building 2-37  
Ichigayatamachi, Shinjuku-Ku, Tokyo  
162-0843 Japan  
T: +81 3 3267 8751  
F: +81 3 3267 8746  
naturephoton@nature.com

## EDITORS

NADYA ANSCOMBE  
OLIVER GRAYDON

## PRODUCTION EDITOR

CHRIS GILLOCH

## COPY EDITOR

JAMES BAXTER

## ART EDITOR

TOM WILSON

## SALES ACCOUNT MANAGER

KEN MIKAMI  
T: +81 3 3267 8751

## ADVERTISING DIRECTOR

GEORGE LUI  
T: +1 415 781 3804

## ADVERTISING MANAGER

SIMON ALLARDICE  
T: +1 415 403 9034



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# 50th anniversary

Many of us take the invention of the laser for granted. It is a technology that we have grown up with, and has always been a part of our everyday lives. It is not until you speak to people such as Charles Townes (see page 294), or read the first description of the laser by Theodore Maiman (see page 281), that you realize how amazing the breakthrough of the laser was.

It all began in Bell Labs over 50 years ago, when Charles Townes was thinking about ways of creating a new optical source to help him perform spectroscopy. The consequent development of the laser changed science forever, and its various forms continue to have considerable impact in many areas of science, technology and industry. For example, semiconductor lasers have revolutionized telecommunications (see page 287); Nd:YAG lasers have changed the way we perform materials processing

(see page 285); excimer lasers drive the semiconductor industry (see page 286); Ti:Sapphire lasers enable ultrafast studies of matter (see page 289); fibre lasers are changing the face of manufacturing (see page 290); and quantum cascade lasers are turning out to be a valuable source of mid-infrared and terahertz radiation (see page 291).

We hope that this special issue of *Technology Focus*, which celebrates the 50th anniversary of the report of Maiman's ruby laser in May 1960, will give an overview of how various laser technologies have evolved over the years, and provide an insight into their origins. Those reading this issue in its new interactive electronic form will have the added bonus of additional video content, featuring interviews with both Townes and Maiman (courtesy of the Optical Society of America and LaserFest). Here's to fifty more years of exciting laser developments.

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