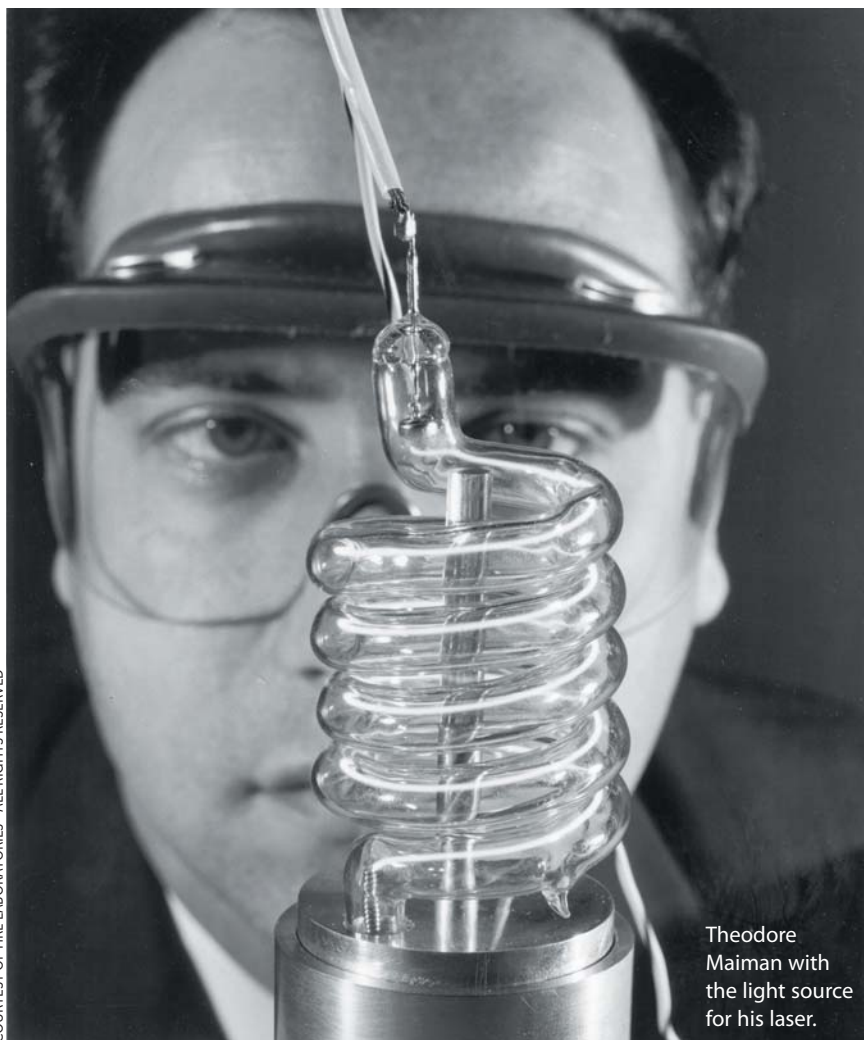




Theodore Maiman with the light source for his laser.

Maiman's memoirs revisited

When Theodore Maiman created the first laser in May 1960 at the Hughes Research Laboratories in California, the news spread through the physics community like a shock wave. Maiman, then just 32 years old, was the head of the quantum electronics division at Hughes and had already developed an innovative compact ruby maser, a precursor to the laser.

At that time, most efforts to build lasers centered on gases, specifically optically excited alkali vapors and noble gases. Maiman, building on his experience with the ruby maser, wanted to see if rubies could also be used for stimulated light emission, and he started a series of measurements to determine the material's quantum efficiency. In 1959 physicist

**The Laser Inventor
Memoirs of
Theodore H.
Maiman**

**Theodore H.
Maiman**
Springer, 2018.
\$34.99



Irwin Wieder had predicted that it would be only about 1%, but Maiman's measurements demonstrated that Wieder's figure was in error; a ruby laser was theoretically possible.

Maiman's colleagues at Hughes were largely disbelieving, but he eventually

succeeded in operating the laser. *Physical Review Letters* rejected his paper, so he published the first results in the lesser known journal *British Communications and Electronics*. Hughes made a public announcement of the achievement on 7 July, and on 6 August, Maiman published a short account in *Nature*.

The Hughes announcement was not enough to secure Maiman credit for his achievement. Many people who had not heard the announcement or seen Maiman's papers instead learned from an October 1960 article in *Physical Review Letters* that a laser had been constructed by a Bell Labs team led by Arthur Schawlow. The Bell team had duplicated Maiman's results and claimed that they were the first to build the laser. A controversy ensued, mainly centered around the Bell team's claim that Maiman had not really achieved laser action. The debate over the "true" inventor of the laser is still alive today—see, for example, the account by Schawlow's colleagues Donald Nelson, Robert Collins, and Wolfgang Kaiser (*PHYSICS TODAY*, January 2010, page 40).

Maiman, who published two excellent papers on the ruby laser in *Physical Review* in 1961, was deeply annoyed by the claim that he had not created a true laser. His 2000 book *The Laser Odyssey* was a harsh account of the controversy and of his perceived neglect at the hands of the academic community. Maiman died in 2007, but after the 50th anniversary of Maiman's laser in 2010, his wife, Kathleen Maiman, decided to republish his memoir under the title *The Laser Inventor: Memoirs of Theodore H. Maiman* and added numerous interesting photos and supplementary documents. The project took eight years to complete.

In her introduction to *The Laser Inventor*, Kathleen explains that her notes and additional materials are "to provide insight into Ted the person and context to controversies surrounding his invention." Her passionate description of her husband's work nicely echoes the original style of *The Laser Odyssey*, and she advises the reader that she is presenting the story of a man whose work did not receive the recognition it deserved.

The republication of the *Laser Odyssey* text follows. At the end of the book are a series of interesting primary source documents, including the speech by

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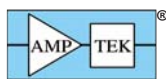


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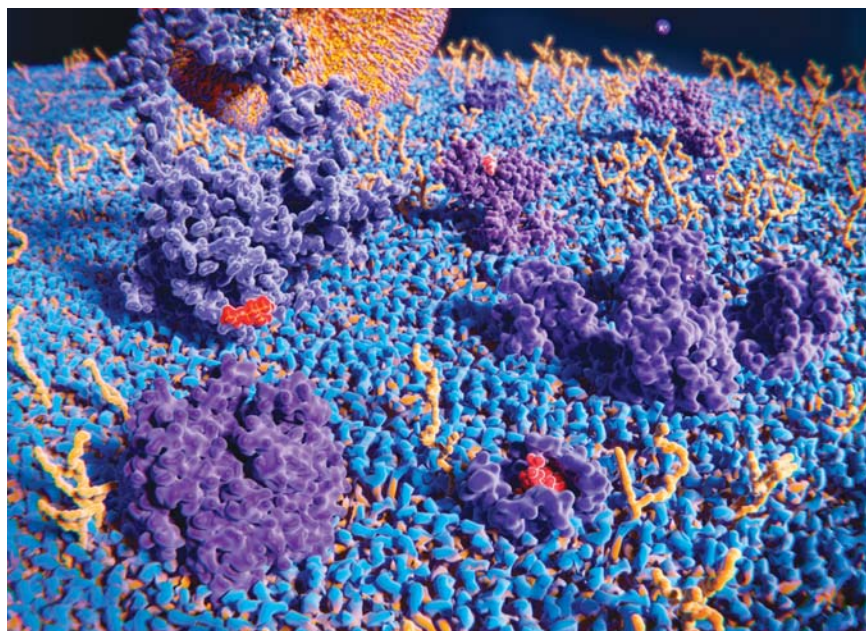
BOOKS

Maiman at his 7 July press conference, a reproduction of his *Nature* paper, and a list of his scientific papers, patents, awards, prizes, and citations. It is particularly nice to see the photo of the original small ruby laser setup and its holographic reproduction, one of which I was given in Vancouver in 2010.

The Laser Inventor presents a lot of interesting material and captures a piece of the history of science. I recommend it to everyone who wants to learn about the laser's beginnings.

Mario Bertolotti

*Sapienza University of Rome
Rome, Italy*



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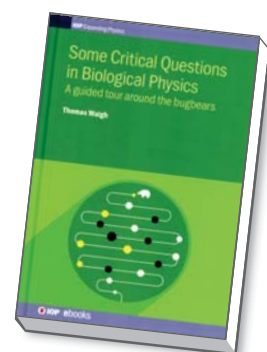
Digging the trenches of biological physics

As scientists, we dig into and work away at new questions until, ideally, we gain a deeper understanding of them. If you, like me, practice biological physics, you realize that the digging is hardly straightforward: You are constantly detouring to explore more physics and sometimes even biology. Such detours are all the more frustrating because you can see that the landscape ahead of you is scientifically fertile and know how much more your conventional physicist colleagues could and should invest in helping biological physics get there. *Some Critical Questions in Biological Physics: A Guided Tour Around the Bugbears* by Thomas Waigh may be able to persuade more physicists to join us as we dig.

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