Arthur L. Schawlow 2/8/99 3:28 PM



Who invented the laser?

- Arthur Schawlow biography
- Charles Townes biography
- <u>Bell Labs</u>
 <u>Historical</u>
 Contributions

What is a laser?



What's happening today?

- <u>Lucent Threw a</u>
 <u>Party and</u>
 Everyone Came
- Bell Labs and Lucent's Contributions to Laser Research

Where can I learn more?



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Arthur L. Schawlow

1921 - Born in Mount Vernon, N.Y., and his family later moves to Toronto.

1949 - Receives a Ph.D. in physics at the University of Toronto, and becomes a research associate and fellow at Columbia University, working with Charles Townes.



1951 - Joins Bell Labs as a research physicist, and <u>marries Aurelia Townes</u>, sister of Charles Townes.

1955 - Co-authors the book *Microwave Spectroscopy* with Townes.

1957 - Begins working with Townes on the principles of a device -- the laser -- that could operate at shorter wavelengths than the maser.

1958 - Proposes with Townes in a paper published in the December *Physical Review* that the principles of the maser could be extended to the optical regions of the spectrum.

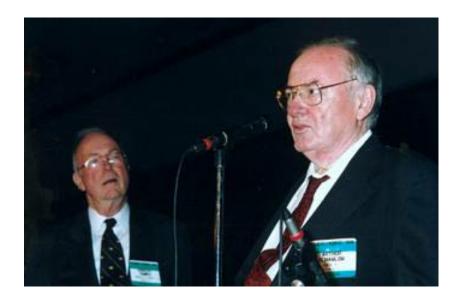
1960 - Receives with Townes a patent for the invention of the laser. The first working laser, at 0.69 microns in ruby, is built by Theodore Maiman at Hughes Aircraft Company. Schawlow becomes a visiting professor at Columbia University.

1961 - Joins the Physics Department at Stanford University, concentrating on molecular spectroscopy.

1966 - Becomes chairman of the Physics Department at Stanford.

1981 - Receives the Nobel Prize in Physics for his "contribution to the development of laser spectroscopy."

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1998 - Joins <u>Townes</u> and scientists from Bell Labs and around the world to celebrate the 40th anniversary of the laser at the <u>CLEO conference</u> in San Francisco.