



2024 NATIONAL INVENTORS
HALL OF FAME INDUCTEE

Born: Sept. 12, 1955

Primary Connections:

- Howard Hughes Medical Institute: Senior Group Leader, Janelia Research Campus, 2005-present
- KLA-Tencor: Director of Technology Programming, 1997-2005
- Bell Labs: Technical Staff Member
- Massachusetts Institute of Technology: Postdoctoral Student, 1982-86

Education:

- University of Chicago: B.S., Physics, 1977
- Princeton University: Ph.D., Physics, 1982

Key Memberships/Awards:

- National Academy of Sciences: James Prize in Science and Technology, 2023; Member, 2018
- American Association for the Advancement of Science: Fellow, 2016
- American Physical Society: Fellow, 1997

10 Things You Need to Know About

Harald Hess

Photoactivated Localization Microscopy (PALM)

U.S. PATENT NO. 7,535,012

1. Hess was born in 1955 in Cape Girardeau, Missouri.
2. He says that growing up in a small Midwest town taught him to be resourceful and creative.
3. As a child, Hess explored his physics interests via science projects, with resources from local shops, junkyards, libraries and the medical supplies catalogs from his father.
4. He continued exploring into his college years: "I didn't want to commit too early going into college to a particular direction. I opted to go to more of a liberal arts school and learn a little bit about history and economics without being committed to a particular field for a while."
5. Hess and Eric Betzig each invested \$25,000 to build a prototype of their PALM technology. They worked in Hess' living room and built a prototype in two months.
6. Zeiss received a license in 2007 from Hess and Betzig to commercialize PALM.
7. He did postdoctoral research on hydrogen atom trapping to make Bose-Einstein condensates, and his work on evaporative cooling of hydrogen contributed to the 2001 Nobel Prize in Physics, awarded to Eric Cornell, Wolfgang Ketterle and Carl Wieman for their achievement of Bose-Einstein condensates. With Betzig's Nobel Prize in Chemistry in 2014, Hess' work contributed to two Nobel Prizes in different fields.
8. Hess spent eight years working in the hard disk drive semiconductor equipment industry before resigning to work with Betzig to explore new forms of microscopy.
9. He is a member of the National Academy of Sciences, and a fellow of the American Association for the Advancement of Science and the American Physical Society.
10. Hess has 31 U.S. patents.