



FIELDS

FIELDS INSTITUTE Research in Mathematical Science

www.fields.utoronto.ca

CELEBRATING WOMEN IN MATHEMATICS

LENE VESTERGAARD HAU

1959 - , Denmark - After receiving her B.S. degree in Mathematics from the University of Aarhus in 1984, Hau continued to study at Aarhus for her Master's degree in Physics, which was awarded two years later. In 1991 she was awarded a Ph.D. but her research had already changed direction.



In 1988 she went to Harvard University where she met Jene A Golovchenko and discussed her future research ideas with him. He worked both at Harvard and at the Rowland Institute for Science in Cambridge, Massachusetts, which had been founded by the inventor of Polaroid photography, Edwin H. Land.

She became famous, not for the work of her thesis but, rather, for her experiments to slow down light. On February 18, 1999 the journal *Nature* selected for its cover article the paper *Light speed reduction to 17 metres per second in an ultracold atomic gas* written by Hau in collaboration with Stephen Harris of Stanford University and two Harvard graduate students, Zachary Dutton and Cyrus Behroozi. Later work resulted in slowing light to about one mile per hour, and then in 2001 her team was able to stop light for one-thousandth of a second. Hau said:

“... this is an amazingly long time. But we think it can be stopped for much longer... It's nifty to look into the chamber and see a clump of ultracold atoms floating there. In this odd state, light takes on a more human dimension; you can almost touch it.”

Biography courtesy of The MacTutor History of Mathematics archive