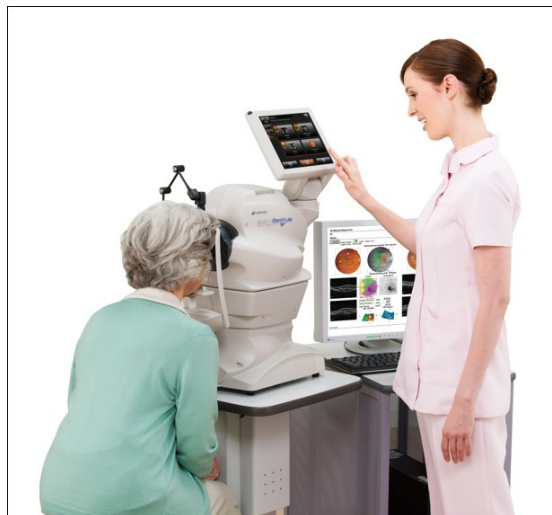


The Honda Prize 2024 Awarded to Dr. James G. Fujimoto —Contribution to the invention and development of Optical Coherence Tomography—

The Honda Foundation, a public interest incorporated foundation established by Soichiro Honda and his younger brother, Benjiro, and currently led by President Hiroto Ishida, is pleased to announce that the Honda Prize 2024 will be awarded to Dr. James G. Fujimoto, Elihu Thomson Professor of Electrical Engineering at the Research Laboratory of Electronics, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology (MIT, U.S.A.) for his research group's development of Optical Coherence Tomography (OCT). The prize also acknowledges his contribution to the commercialization and clinical translation of OCT in ophthalmology, cardiology, and biomedical research.



The latest OCT device with a fundus camera.

Today OCT is a standard imaging modality in ophthalmology.

■Visualizing hidden part of the human eye

Until a quarter century ago, the only type of examination available to ophthalmologists to study eye problems was observing the intravascular structure of the fundus using a dye. However, this method only allowed observation from the front, meaning the back of the eye and the surroundings of the optic nerves remained unseen. Much had to be estimated from those visible areas.

In OCT, invisible (near-infrared) light is first directed onto the human eye. The light reflected by the biological tissues in the eye, such as the retina and capillaries—just like an echo—is then processed to produce a cross-sectional image. This technique enabled the close study of the inner structure of the eye.

■Reducing patients' burden and medical costs

People perceive the image formed by the light coming through the lens onto the retina at the

back of the eye, particularly on the macula where the optic nerves are concentrated. The retina is susceptible to a variety of lesions that can lead to partial or total vision impairment, such as edema, retinal detachment, age-related macular degeneration (AMD), and epiretinal membrane (ERM). OCT enables precise examination of the biological tissues without damaging the eye or requiring a scalpel or medical pin. The significantly improved accuracy of examination also enabled early discovery and follow-ups of critical diseases. As the examination requires only several seconds, OCT dramatically shortens the diagnostic turnaround time, while also reducing medical costs.

■Research on OCT

After Dr. Fujimoto published his preliminary research paper on OCT in 1991, he led a collaborative research team of clinician scientists and electronics engineers aiming to apply OCT to ophthalmic diagnoses. The team succeeded in obtaining in vivo human retinal images using OCT in 1993. Dr. Fujimoto then further advanced OCT research so swiftly that the world's first ophthalmoscope using OCT was commercially launched in 1996.

The 45th Honda Prize award ceremony will be held at the Imperial Hotel in Tokyo on November 18, 2024. In addition to the prize medal and the diploma, Dr. Fujimoto will be awarded a total of 10 million yen.

*For more information, please see the Honda Foundation website.

Honda Foundation Press Release

https://www.hondafoundation.jp/news/view_en/1728

The Achievement Commentary

https://www.hondafoundation.jp/commemoration/index_en/285/year:2024