

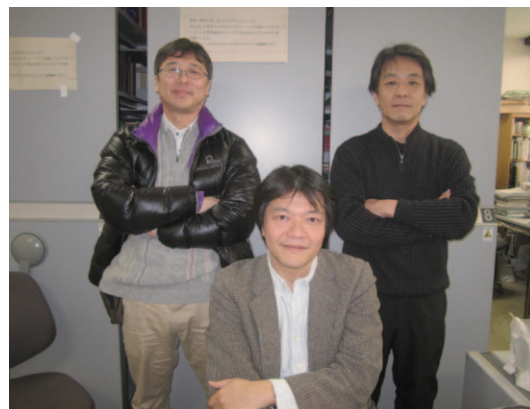
## ■ News

### Yuji Hasegawa of Vienna University of Technology describes his ground breaking findings on quantum physics and the Heisenberg principle

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In January 2012 Professor Yuji Hasegawa of the Vienna University of Technology reported new experiment facts that overturned the long-held Heisenberg Uncertainty Principle—one of the fundamental pillars of quantum physics.

In recognition of the scientific importance of these findings Okayama University invited Professor Hasegawa to give a seminar about his findings in February 2013. He accepted the invitation and described his research at a seminar entitled, 'Beyond the Heisenberg Uncertainty Principle'.



Professor Yuji Hasegawa (center) and Professor Naoshi Ikeda (right).

The 'Heisenberg Principle' was first proposed by German theoretician Werner Heisenberg in 1927 and is a fundamental concept that is described in quantum physics textbooks. Due to the many ambiguities surrounding the principle, proofs and counter-proofs have been proposed for many years, until Professor Masanao Ozawa of Nagoya University announced the Ogawa Uncertainty Formula, which finally overturned the principle. Professor Hasegawa proved the validity of this formula through his experiments, which become a major global news item.

The lecture was realized as a result of an invitation by Professor Naoshi Ikeda of the Okayama University Graduate School of Natural Science and Technology. Professor Hasegawa gave a clear and succinct description of his experimental procedures to prove the Ogawa Uncertainty Formula, and explained how his verification will have a major impact on society through the development of quantum computers, quantum encoding technology, and applications to computational finance. The seminar was followed by many questions and a discussion with students and researchers in the audience.

Professor Hasegawa's paper (English):

<http://www.nature.com/nphys/journal/v8/n3/full/nphys2194.html>

Vienna University of Technology:

[http://www.tuwien.ac.at/en/tuwien\\_home/](http://www.tuwien.ac.at/en/tuwien_home/)