

External Awards

WTC2012 Best Poster Award

Winners: Arifumi Matsumoto^{†1}, Masaki Minami^{†2}, and Ichiro Inoue^{†1}

^{†1} NTT Service Integration Laboratories

^{†2} NTT WEST

Date: March 6, 2012

Organization: The World Telecommunications Congress (WTC) 2012, Miyazaki, Japan.

For “A Novel Management Method of Carrier Grade NAT for Large Scale IPv4/IPv6 Networks”.

IPv4 address depletion is forcing Internet service providers and enterprises to deploy network address translation (NAT) in their networks. At the same time, network providers have to maintain traceability of abuse of and by their users. These two requirements do not coexist easily because NAT makes tracing difficult. The NAT session log is the key to keeping traceability in such a large-scale NAT environment, but the problem is that it can become too large. This paper proposes a method of reducing the size of the NAT session log. The method is evaluated using actual traffic data and confirmed to reduce the session log to almost half. Moreover, the method is analyzed to find several approaches to producing further improvements in the reduction ratio.

The Young Scientists' Prize, Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology

Winner: Norio Kumada

Date: April 17, 2012

Organization: Ministry of Education, Culture, Sports, Science and Technology

For “Many-body Physics in Two-dimensional Systems Formed in Semiconductors”.

Quantum Hall states, which appear in high-mobility two-dimensional systems under a high-magnetic field, show a variety of quantum many-body physics. We investigated many-body states by controlling carrier interactions by using bilayer systems formed in semiconductors. In particular, we developed highly sensitive nuclear magnetic resonance techniques, which revealed low-frequency spin fluctuations associated with spontaneous symmetry breaking in a two-dimensional system.