External Awards

Jury Best Demo Honorable Mention/People's Choice Best Demo Honorable Mention
Winner: Kentaro Yasu, NTT Communication Science Laboratories
Date: November 2, 2023
Organization: The 36th Annual ACM Symposium on User Interface Software and Technology (UIST 2023)

For "Demonstrating SuperMagneShape: Interactive Usage of a Passive Pin-based Shape-changing Display."
Published as: K. Yasu, "Demonstrating SuperMagneShape: Interactive Usage of a Passive Pin-based Shape-changing Display," Proc. of UIST 2023, Article no. 59, San Francisco, CA, USA, Oct./Nov. 2023.

Excellent Presentation Award
Winners: Kohei Takahashi, NTT Human Informatics Laboratories; Narimune Matsumura, NTT Human Informatics Laboratories; Hitoshi Seshimo, NTT Human Informatics Laboratories; Shinkuro Honda, NTT Human Informatics Laboratories
Date: January 23, 2024
Organization: The Society of Instrument and Control Engineers (SICE)

For "Examination of a Tele-nursing System on the Subject of Remote Sputum Suction."
Published as: K. Takahashi, N. Matsumura, H. Seshimo, and S. Honda, "Examination of a Tele-nursing System on the Subject of Remote Sputum Suction," Proc. of the 24th SICE System Integration Division Conference (SI2023), 1B5-01, Niigata, Japan, Dec. 2023.

Excellent Presentation Award
Winners: Taichi Kanada, NTT Human Informatics Laboratories; Daisuke Satou, NTT Research and Development Planning Department; Masato Miyahara, NTT Human Informatics Laboratories; Narimune Matsumura, NTT Human Informatics Laboratories; Hitoshi Seshimo, NTT Human Informatics Laboratories
Date: January 23, 2024
Organization: SICE

For "Operator Response Detection Methods for Semi-autonomous Teleoperation Systems."
Published as: T. Kanada, D. Satou, M. Miyahara, N. Matsumura, and H. Seshimo, "Operator Response Detection Methods for Semi-autonomous Teleoperation Systems," Proc. of SI2023, 3E1-05, Niigata, Japan, Dec. 2023.

Best Presentation Award
Winners: Ryota Imai, NTT Human Informatics Laboratories; Mitsuhiro Goto, NTT Human Informatics Laboratories; Kenji Esaki, NTT Human Informatics Laboratories; Hitoshi Seshimo, NTT Human Informatics Laboratories
Date: January 27, 2024
Organization: The Institute of Electronics, Information and Communication Engineers (IEICE) Technical Group on Media Experience and Virtual Environment (MVE)

For "A Control Method for Bodily Sensory Reproduction Player of Windsurfing Considering Frequency Characteristics of Athlete's Swaying/Tilting Sensation."
Published as: R. Imai, M. Goto, K. Esaki, and H. Seshimo, "A Control Method for Bodily Sensory Reproduction Player of Windsurfing Considering Frequency Characteristics of Athlete's Swaying/Tilting Sensation," IEICE Tech. Rep., Vol. 123, No. 359, MVE2023-37, pp. 25–30, Jan. 2024.

Papers Published in Technical Journals and Conference Proceedings

Coherent Response of Inhomogeneously Broadened and Spatially Localized Emitter Ensembles in Waveguide QED
L. Ruks, X. Xu, R. Ohta, W. J. Munro, and V. M. Bastidas
Physical Review A, Vol. 109, 023706, Feb. 2024.

Spectrally and spatially varying ensembles of emitters embedded into waveguides are ever-present in both well-established and emerging technologies. If control of collective excitations can be attained, a plethora of coherent quantum dynamics and applications may be realized on-chip in the scalable paradigm of waveguide quantum electrodynamics (WQED). Here, we investigate inhomogeneously broadened ensembles embedded with subwavelength spatial extent into waveguides employed as single effective and coherent emitters. We develop a method permitting the approximate analysis and simulation of such mesoscopic systems featuring many emitters, and show how collective resonances are observable within the waveguide transmission spectrum once their linewidth exceeds the inhomogeneous line. In particular, this allows for near-unity and tailorable non-Lorentzian extinction of waveguide photons overcoming large inhomogeneous broadening present in current state-of-the-art implementations. As a particular illustration possible in such existing

experiments, we consider the classic emulation of the cavity QED (CQED) paradigm here using ensembles of rare-earth ions as coherent mirrors and qubits and demonstrate the possibility of strong coupling given existing restrictions on inhomogeneous broadening and ensemble spatial extent. This work introduces coherent ensemble dynamics in the solid state to WQED and extends the realm to spectrally tailorable emitters.