

Research Result Report
ICRR Inter-University Research Program 20

Research Subject: Self Interacting Dark Matter and Gravitational waves
Principal Investigator: Quynh Lan Nguyen
Participating Researchers: ICRR host faculty: Prof. Tagoshi Hideyuki
Summary of Research Result : We have focused on gravitational wave lensing for dark matter and result are: - One publication on Multi-messenger gravitational lensing at <u>Philosophical Transactions A 383 (2295), 20240134</u> - One publication on Weak-lensing Approximation of Wave-optics Effects from General Symmetric Lens Profiles at - Two publications on Journal of Physics Conferences Series on <u>Magnetic field in the universe</u> and <u>Light Dark matter and gravitational waves</u> We also gave 8 invited talks and one contributions talks at the workshop, seminar and colloquium 1. Searches for Dark Matter using Gravitational-Wave Detectors Dec. 2025 The International Joint Workshop on the Standard Model and Beyond, Taipei, Taiwan. 2. KAGRA: Enabling kHz Gravitational Wave Observations Nov. 2025 Annual Meeting of the Vietnam Astronomical Society (VASAM2025), Hanoi, Vietnam. 3. Searches for Dark Matter using Gravitational-Wave Detectors Nov. 2025 3rd International Workshop: Particles, Gravitation, and the Universe: from Quantum Mechanics to Quantum Gravity, Hanoi, Vietnam. 4. Probing Dark Matter with Gravitational Waves and Cosmic Magnetic Fields Nov. 2025, Institute of Physics, Vietnam Academy of Science and Technology, Vietnam. 5. A Decade of Gravitational-Wave Discoveries Since GW150914 Oct. 2025 9th Academic Conference on Natural Science for Young Scientists, Master and PhD Students from ASEAN countries (CASEAN - 9), Nha Trang, Vietnam.

6. Exploring the Magnetic Field in the Merging Galaxies May 2025 SAGI Astrophysics Workshop, Quinhon, Vietnam. 7. Panel list, dark matter section March 2025, Saterline meeting OzGrav-LVK, Melbourne, Australia. 8. Gravitational Waves Observations (plenary talk) Jan. 2025, Workshop on Advanced Science and Technology 2025, Hochiminh, Vietnam.
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