Research Report 2019

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Publications

1. J. Fan, T. Ozawa
   A note on bilinear estimates in the Sobolev spaces,
   International Journal of Mathematical Analysis, **13**, no.12, (2019), 551-554.
   https://doi.org/10.12988/ijma.2019.91064
2. J. Fan, T. Ozawa
   Cauchy problem and vanishing dispersion limit for Schrödinger-improved Boussinesq equations,
   J. Math. Anal. Appl., **485**, Issue 2, (2020), 123857.
   https://doi.org/10.1016/j.jmaa.2020.123857 (Open Access)
3. N. Bez, S. Machihara, T. Ozawa
   Hardy type inequalities with spherical derivatives,
   SN Partial Differ. Equ. Appl., **1**, Issue 1, (2020), Article 5.
   https://doi.org/10.1007/s42985-019-0001-1 (Open Access)
4. K. Fujiwara, V. Georgiev, T. Ozawa
   On global well-posedness for nonlinear semirelativistic equations in some scaling subcritical and critical cases,J. Math. Pures Appl., **136**, (2020), 239-256.
   https://doi.org/10.1016/j.matpur.2019.10.003 (Open Access)
5. J. Fan, T. Ozawa
   A blow-up criterion for the modified Navier-Stokes-Fourier equations,
   Journal of Mathematical Fluid Mechanics, **22**, (2020), Article number 16.
   https://doi.org/10.1007/s00021-019-0477-7 (Open Access)
6. K. Fujiwara, V. Georgiev, T. Ozawa
   Self-similar solutions to the derivative nonlinear Schrödinger equation,
   Journal of Differential Equations, **268**, Issue 12, (2020), 7940-7961.
   https://doi.org/10.1016/j.jde.2019.11.089
7. L. Forcella, K. Fujiwara, V. Georgiev, T. Ozawa
   Blow-up or global existence for the fractional Ginzburg-Landau equation in multi-dimensional case, "New Tools for NonlinearPDEs and Applications," Trends in Mathematics, Birkhäuser (2019), 179-202.
8. M. Karazym, T.Ozawa, D. Suragan,
   Multidimensional inverse Cauchy problems for evolution equations,
   Inverse Problems in Science and Engineering, (in press).
9. J. Fan, T. Ozawa
   Regularity criteria for a Ginzburg-Landau-Navier-Stokes system,
   Funkcialaj Ekvacioj, (in press).

研究発表

1. T. Ozawa
   Self-similar solutions to the derivative nonlinear Schrödinger equation
   Conference on "Nonlinear Dispersive Waves, Solitons and related topics"
   11 June 2019

INSTITUT MITTAG-LEFFLER, Djursholm, Sweden
Invited

2. T. Ozawa
Self‐similar solutions to the derivative nonlinear Shrödinger equation
12th ISAAC Congress
30 July 2019
University of Aveiro, Portugal
Plenary

3. T. Ozawa
微分型相互作用をもつ非線型シュレディンガー方程式の自己相似解 (in Japanese)
第 9 回岐阜数理科学研究会
9 September 2019
飛騨高山まちの博物館 研修室, Gifu, Japan
Invited

4. T. Ozawa
Self-similar solutions to the derivative nonlinear Schrödinger equation
International Conference “Actual Problems of Analysis, Differential Equations and lgebra”(National academy of sciences of the Republic of Kazakhstan)
16 October 2019
L.N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan
Plenary

5. T. Ozawa
Minimization problem on the action
PDE Workshop
1 November 2019
Peking University, China
Invited

6. T. Ozawa
ポワンカレの不等式・温故知新 (in Japanese)
微分方程式セミナー
24 January 2020
Osaka University, Japan
Invited

7. T. Ozawa
Existence and Uniqueness of Classical Paths under Quadratic Potentials
The 37th Kyushu Symposium on Partial Differential Equations
28 January 2020
Kyushu University Nishijin Plaza, Japan
Invited

図書

1. M. D'Abbicco, M. R. Ebert, V. Georgiev, T. Ozawa (Eds.),
New Tools for Nonlinear PDEs and Application,
Trends in Mathematics, Birkhäuser 2019, viii+390pp.

2. K. Kato, T. Ogawa, and T. Ozawa (Eds.),
Asymptotic Analysis of Nonlinear Dispersive and Wave Equations,
Advanced Studies in Pure Mathematics, 81, 2019, Mathematical Society of Japan, 419pp.

Conference Organized

1. Nonlinear Science Colloquium
   Waseda University
   開催日
   November 19, 2019　YOSHIDA Zensho The University of Tokyo
   “Lie-Poisson 代数の変形とカイラリティー”(in Japanese)

2. International Workshop on “Fundamental Problems in Mathematical and Theoretical Physics”
   Top Global University Project, Waseda University
   July22-26, 2019
   Waseda University

3. The 44th Sapporo Symposium on Partial Differential Equations
   August 5-7, 2019
   Hokkaido University

4. Waseda Workshop on Partial Differential Equations
   December 17, 2019
   Waseda University

Research Summary

1. We have formulated and proved stability of trace theorems on the sphere.
2. We have formulated and proved higher order fractional Leibniz rule.
3. We have clarified a relationship between non-gauge structure and blowup of solutions for nonlinear Schrödinger equations of derivative type.