Research Report 2020 (Shuichi Kawashima)

Publications

1. S. Yoshikawa and S. Kawashima, Global existence for a semi-discrete scheme of some quasi-linear hyperbolic balance laws, J. Math. Anal. Appl., **498** (2021), 124929, 17 pp. https://doi.org/10.1016/j.jmaa.2021.124929
2. M. Okada, N. Mori and S. Kawashima, Decay property for symmetric hyperbolic systems with memory-type diffusion, J. Differential Equations, **276** (2021), 287–317. https://doi.org/10.1016/j.jde.2020.12.021
3. S. Taniue and S. Kawashima, Dissipative structure and asymptotic profiles for symmetric hyperbolic systems with memory, J. Hyperbolic Differential Equations, (accepted).

Research Talks

1. S. Kawashima, Mathematical analysis for hyperbolic systems of balance laws, Series of Lectures, Tokyo Institute of Tecnology, Tokyo, November 16–20, 2020.
2. S. Kawashima, Decay property for system of magnetohydrodynamics with Hall effect, Ookayama Colloquium, Tokyo Institute of Tecnology, Tokyo, November 18, 2020.
3. R. Nakasato, S. Kawashima and T. Ogawa, Time-global wellposedness in the critical Besov space for the compressible magnetohydrodynamic system with Hall effect, Spring Meeting, Mathematical Society of Japan, Keio University, March 15–18, 2021. (speaker: R. Nakasato)

Conferences (Organized)

1. Conference: The 16th "Topics in Nonlinear Problems", by Zoom, September 8–9, 2020.
2. The 38th Kyushu Symposium on Partial Differential Equations, by Zoom, January 25–26, 2021.
3. Conference "Partial Differential Equations and Mathematical Analysis for Young Researchers", by Zoom, February 18–19, 2021.

Research Summary

1. We showed the global existence of solutions to the structure-preserving difference scheme for a model system of hyperbolic balance laws.
2. We showed the decay estimate of solutions for symmetric hyperbolic systems with memory-type diffusion.
3. We obtained the asymptotic profiles of solutions for symmetric hyperbolic systems with memory-type dissipation when the memory kernel is given by the exponential function.