

様式 2 帰国報告書 (ITP Research Report)

Research Report of JSPS-ITP

(The international sending-elevating project for young mathematicians based on singularity, topology and mathematical analysis: Hokudai model)

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Research Report:

I attended to “Analysis Seminar”, and some lectures on PDE, Mathematical Finance, and so on. Each speaker was unique, and the lectures were very interesting. I took 3 or 4 lectures in a week. Also I talked with my adviser in CIMS, Professor Robert. V. Kohn, once a week regarding my master-thesis and preprint which are related to one of his studies. I have been studying the game theoretic representation of a solution to some PDEs for several years since I read his paper on a game theoretic approach to the construction of the solution for a curvature flow via deterministic discrete two-person game. An analysis via value functions of “optimal control problem”, “differential game”, and “stochastic control problem” can be interesting subjects as a method for solving PDEs. In the discussions with Professor Kohn, he gave me some advices on the regularity for the arrival time of a mean curvature flow. Those relates to my master-thesis. When a mean curvature flow vanishes by its characters, a singularity arises. The question was whether the flow has the regularity more than  $C^2$  at that singular point in the dimensions more than 2 or not. Although it has been an open problem since he said it in his previous paper, I heard from him that it seemed to be recently proved by the other researcher. The results will enable to extend one of his results and also mine perhaps. In addition, he commented on the improvable points of my preprint, and talked about his recent works and also the issues which should be well-considered on researching those subjects. It was so meaningful that I could talk with him regarding our research fields. I greatly appreciate him and sincerely hope to see him again to discuss more. I would like to participate in international projects like this again in the near future.