

Preface

The group of low temperature and magnetism research in Toyama, Japan has been continuing studies under close collaborations with the groups of very low temperature research center and the nuclear research center (CRTBT and CEN) in Grenoble, France. Members of both groups have mutually visited each other many times for long terms and for short terms for collaborations, and we can count many papers with the names of co-authors belonging to both groups. Toyama group succeeded to install, in the laboratory of Toyama University, a type of dilution refrigerator which was developed in CRTBT, Grenoble. It was the first dilution refrigerator of this type which was imported to Japan, and people belonging to CRTBT helped us much for the installment.

It was lucky for us that a grand-in-aid for Scientific Research from the Ministry of Education, Science and Culture in the category of the international cooperation was admitted for two years to J. Sakurai. The cooperations were much accelerated thanks to this grand-in-aid. Members of Toyama group thought of an idea that we are going to organize a Japan-France seminar in Toyama at the end of the term of the grand-in-aid to commemorate the cooperations hitherto carried out between us. Members of Grenoble groups admitted this idea, and the preparations of France-Japan seminar were started.

Thus, the France-Japan seminar with the title “Magnetic, Electric and Thermal Properties of Rare Earth Compounds” was decided to be held from 13th to 15th March, 1996 in a Resort Center of Japan Pension Program in the suburbs of Toyama city.

Other Japanese groups belonging to Institutes other than Toyama are also carrying out close collaborations of research with Grenoble groups. These active physicists also agreed to our invitation to participate in the seminar. Thus, important figures in the world in the fields of the title of the seminar attended the seminar. It was pity that we had to limit the number of the participants. It was because we wanted to guarantee enough time to present each talk with ample time for discussions, and to organize the seminar in an intimate atmosphere. It was also a necessary condition of our budget. In organization of the seminar, we profited much the e-mail system for correspondences. Without it, the organization would have been much slower and more inefficient.

Among the participants of the seminar, we counted ten physicists from France, eight physicists from Toyama (belonging to Toyama University or to Toyama Prefectural University) and thirteen physicists from other Japanese Universities from Hokkaido to Okinawa. We also advised our students to visit the seminar as observers hoping that the hot atmosphere of the seminar will animate them.

The participants made talks of summary on accumulated data and of ambitious key ideas which will be stimulate new studies. They are, for examples, the occurrence of very small magnetic moments in the heavy fermion compounds, heavy fermion superconductors, metamagnetism, Kondo insulator, Kondo effect of low carrier systems and so on. Readers will find them in this proceedings.

Throughout the seminar, each talk was followed by comments and/or questions of essential importance among the participants. It is for sure that these discussions made the seminar more active and more fruitful. After the seminar was over, the editors asked to several participants who made very active discussions to write an article of summary of the seminar. Prof. Kasuya accepted our demand, and he gave us a long article with a title “comments and summary”. When the readers will read this proceedings, they will surely continue to read “comments and summary” by Prof. Kasuya with much interest and satisfaction. His article will help readers to have deeper insight, and moreover, they will feel to add their comments themselves. Our sincere thanks are due to Prof. Kasuya for giving us “summary and comment”.

Let us mention about another unique aspect of the seminar. Although the participants were concentrated themselves in the physics throughout the seminar, we had an open and unprepared session for talking about politics. When the preparation of the seminar started last year, the new

French President, Mr. Chirac, announced a series of tests of nuclear weapon in Pacific Ocean, and protests of the people have arisen in many places of the world. It is sure that the motivation of our seminar has nothing to do with the nuclear tests and the protests against it. However, questions came across our minds: are we going to limit our interests inside physics, and are we going to keep the seminar without making contact with the political situation? After the banquet on the second night of the seminar was over, Sakurai proposed to discuss on the French nuclear tests. Most of the participants joined this discussions impromptu in a free space in front of the banquet room, and they exchanged their opinions against the nuclear tests, the policy of deterrence and the existence of nuclear weapons. Thus, the seminar was an opportunity to exchange our opinions and to promote the friendship not only on the base of physicists but also on the base of human beings.

The seminar was sponsored by the Grand-in-aid of the Ministry of Education, Science and Culture. Independently, the publication of this proceedings is sponsored by “The Foundation of Prof. Kasuya for the promotion of scientific researches”. We express our heartfelt thanks for them.

We expect the readers good and profitable readings of this proceedings.

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(Chairmen of the seminar)