

Report on the Gordon Research Conference on Superconductivity

Les Diablerets, Switzerland, 17-22 September 1995

The conference was held in the village of Les Diablerets, where most of the participants were lodged at the Eurotel and some at the near-by Hotel des Sources. The oral sessions were held at the very nice conference center of Les Diablerets, situated only 3 min walk from the Eurotel. The poster sessions were held at the Eurotel in a room adjacent to the lobby. The situation of Les Diablerets and the facilities at the Eurotel and the Conference Center gave an excellent frame for the conference and contributed to its success. I would also like to mention here the remarkable service offered by the Eurotel to the participants.

We had 120 participants which is about the optimum for this type of conference. The conference was truly international with participants from Canada, the Czech Republic, France, Germany, Great Britain, Israel, Italy, Japan, New Zealand, the Netherlands, Spain, Switzerland and the United States. The scientific program consisted of 30 invited talks, short poster presentations and 4 poster sessions. A copy of this program as well as a list of the posters are joined to the present report.

The scope of this conference was to address and discuss the present status of the research on high temperature superconductors and other superconducting materials. The conference is one in a series of Gordon conferences on superconductivity held earlier in Oxnard, California. The format of the conference was the one usually used for the Gordon conferences: 3 or 4 talks in the morning, free time for discussions in the beginning of the afternoon followed by a 2 hour poster session. The evening sessions had 2 or 3 talks. Overall the quality of the presentations were excellent. The speakers gave enough background material in the introduction so that the audience could follow the most recent developments. Most of the talks stimulated considerable discussion with a broad participation.

The conference was organized into sessions with two or three talks concentrating on a specific subject. Thus we had a session on new materials focusing on the structural richness of the high temperature superconductors and the possible implications for the critical currents and future applications. We also had a session on the new class of superconducting borocarbides and on heavy fermion superconductors. Several talks addressed experiments probing the nature of the microscopic superconducting state in the high temperature superconductors: photo emission, specific heat, optical properties, neutron scattering, NMR, tunneling and Josephson devices. Other talks discussed the fascinating properties of the vortex states in these materials. Although the conference was, as earlier conferences in this series, mainly focusing on experimental investigations, a number of theoretical questions were also discussed, in particular the nature of the microscopic state and theoretical aspects of the vortex state. An evening session assessed the potential for future applications.

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The poster session was an important part of the conference. A total of 76 posters were presented and these were divided into two parts so that each poster was exposed during two days. This gave ample time to discuss the results presented and thus the posters contributed very much to the overall success of the conference. In order to further improve the communication we also asked each poster presenter to give a very short (max 2 min) presentation of his or her poster. This gave the participants a brief overview of the subjects treated before the poster session started and clearly improved the communication between the participants.

At the business meeting, devoted mainly to discuss the future conferences of this series, a very large majority among the participants expressed the wish both to continue the conference and that the location alternates between the US and Europe in the future.

In summary, at this conference several of the central and basic questions in the science of superconductivity were discussed. The talks and the following discussions allowed an in depth analysis of these questions. If we judge on the numerous positive reactions by the participants after the conference, it was felt that the conference had achieved its goal in furthering both the science and the scientific exchange among the participants. This, of course, speaks for the excellent contributions from the participants, in the oral presentations, in the discussions and at the posters. We also believe that the special Gordon conference format was an essential factor in this result. We finally conclude that the success of the conference speaks for the vitality of the field of superconductivity and that this certainly call for a continuation of this series and for similar conferences in the future.

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R. L. Greene
University of Maryland