

OAK RIDGE NATIONAL LABORATORY

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ORNL

FOREIGN TRIP REPORT

ORNL/FTR-3374

DATE: September 20, 1989

SUBJECT: Report of Foreign Travel to Geneva, Switzerland

TO: H. Postma ORNL/FTR--3374
FROM: A. W. Trivelpiece DE90 001258

PURPOSE: To discuss research arrangements regarding the Superconducting Super Collider (SSC) with Dr. Sam Ting and the CERN Laboratory Director General.

SITES VISITED: CERN Laboratory/Geneva, Switzerland
September 7-8, 1989
Contacts: Dr. Sam Ting and Dr. Carlo Rubia

ABSTRACT: Traveler met with Dr. Sam Ting, leader of the L-3 Detector Group on the Lep accelerator at CERN to discuss possible collaboration involving the Oak Ridge National Laboratory in the design, construction, and operation of a detector to be used on the SSC. Traveler also met with country leaders involved in the L-3 activities, and interviewed several physicists working on the project as candidates to come to ORNL and work on the new detector.

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INTRODUCTION

The Large Electron Positron Collider (Lep) accelerator is located in Geneva, Switzerland. It consists of a 29 km long circular tunnel in which an electron accelerator brings beams of counter-circulating electrons and positrons to points where they collide to produce a variety of subatomic particles, such as the Z-zero, which are studied by physicists from institutions around the world. This accelerator has only been operational for a short time, and some of the detectors are still undergoing initial operation.

One of the detectors used to measure the properties of some of these subatomic particles is called the L-3. It is supported in part by the U.S. Department of Energy. The activities associated with the L-3 involve some 460 physicists from more than 16 countries. Dr. Sam Ting, Professor of Physics at MIT, is the leader of this activity.

REPORT

On September 7, 1989, the traveler was taken on a guided tour of the WA80 experiment by Drs. Kold and Lunt. Portions of this experiment were designed and built at ORNL. Several ORNL scientists are involved in the research using this apparatus. Subsequently, the traveler was taken on a guided tour of the L-3 detector by Dr. Marion White, Research Professor from MIT. It was not possible to go into the experiment pit since the Lep was operating during the entire period of the stay. It was possible to examine all other systems associated with the detector.

On September 8, 1989, Dr. Ting reported briefly on the status of the L-3 project for the traveler and Drs. Tarter, Associate Director Physical Sciences at the Lawrence Livermore National Laboratory (LLNL), and Dr. Brill (also LLNL). They were visiting CERN to explore with Dr. Ting possible LLNL collaboration with the L-3 group to design and build a new detector, to be called the L-Star, for the Superconducting Super Collider (SSC).

Dr. Ting reported the existing group included 460 physicists, with 11 universities involved. This group includes 150 physicists from the Soviet Union and a national European team.

Dr. Ting estimates that the TEC for the L-Star will be about \$400 million. Approximately one-third will be funded by DOE, one-third by the USSR, and one-third by the European team.

During this day, the traveler interviewed seven young physicists in the L-3 group that Dr. Ting regards as outstanding and would be good candidates to come to Oak Ridge to help get the L-Star detector effort started. Over the next several months, they will all visit ORNL to present seminars on their work and meet with members of the Laboratory staff.

At a luncheon meeting with the country leaders of the L-3 project, the traveler discussed various aspects of arrangements for possible collaboration on the L-Star project. This led to discussion with Prof. Hans Hofer regarding his possible role in helping the efforts at Oak Ridge. He will come to the Laboratory at the end of September for additional discussions.

On September 9, 1989, the traveler met with Dr. Ting at the Geneva airport for additional discussions prior to return to the U. S. Dr. Ting was departing from Geneva to Moscow where he was to have a three-day meeting with leaders of the Soviet Union High Energy Physics Programs to discuss their possible participation in and support of the the L-Star detector project.

APPENDIX

Thursday, September 7, 1989

10:20 Arrival, flight LH1846
 Met by Prof. Ting, Dr. Steuer

11:00 Driven to Hotel Intercontinental

14:15 Driven by Dr. M. Steuer to CERN

14:35 Visit of WA80 experiment, shown by Dr. Kold

15:20 Driven by Dr. M. Steuer to L3 experimental hall

 Met by Prof. Ting
 Visit of L3 experiment, when the area is open.

19:00 Dinner with Prof. Ting

Friday, September 8, 1989

08:30 Driven to CERN by CERN car (from Hotel Intercontinental)

09:00-09:45 Interview with Dr. Marion White

09:45-10:30 Interview with Dr. W. Wallraff

10:30-11:15 Interview with Dr. David Stickland

11:15 - 12:00 Interview with Dr. M. Capell

12:30 Lunch at Hotel Intercontinental, La Pergola, with L3 Senior
 physicists :
 S. Ting, Y. Galaktionov, H. Hofer, K. Lubelsmeyer, P. Piroue,
 J.A. Rubio, P. Extermann

15:00-15:45 Interview with Dr. D. Antreasyan

15:45-16:30 Interview with G. Mills

17:30 Talk with Prof. Hofer, Prof. Ting

19:00 Dinner with L3 young physicists, at Glassbox restaurant, COOP.

20:00 Driven back to Hotel Intercontinental

Saturday, September 9, 1989

08:00 Transport to Airport by Dr. M. Steuer
09:20 Flight BA735

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