

Physics Research Experiences for Sixth-Form Students (PRESS)

organized by

**The Physical Society of Hong Kong
2001-2002**

Background and objectives:

It is generally believed that although the quality of students in Hong Kong is as good as students anywhere in the world, the education opportunity and learning experience our education system provides are too rigid compared with many other countries in the world. In particular, it has not provided enough flexibility for our very talented group of students to explore their hidden talent.

This project, sponsored by the six physics-related Departments in Hong Kong and coordinated by the Physical Society of Hong Kong (PSHK), aims at providing additional learning opportunity to our best secondary school students who are interested in science. We aim at providing real scientific research experience for extraordinary F.6 secondary school students who have shown strong interests in science, and in physics in particular. Selected student(s) work under the supervision of our physics faculty members on a research project.

PRESS-2001:

PRESS-2001 was an event lasted for 9 months during the academic year 2001-2002. A total of 16 research projects were solicited from faculty members in the six physics-related departments in Hong Kong. The project was announced to high school physics teachers/principals in August 2001. Application forms were collected on September 30, 2001. We received 76 applications from highly qualified students. After a competitive selection process, 45 students are admitted into the project.

A poster exhibition was organized at the end of January 2002 at the University of Hong Kong. Each research project was requested to present a poster to report on their progress on the project. Teachers from the school sector were also invited to come to the exhibition. The event provided an opportunity for the participants to know other's work and to exchange ideas. It also provided a channel for teachers and students to know more about the PRESS project.

Research work ended in early May 2002, and students presented their results in a presentation session in the morning of 18 May 2001 at the City University of Hong Kong. A panel of judges formed by faculty members from six tertiary institutions selected six projects to enter the final oral presentations in the afternoon of 18 May 2002. Three projects are awarded the Best Project Award after the oral presentations. The winning teams were invited to present their results in a special session at the Annual Conference of PSHK held at Hong Kong Polytechnic University on 29 June 2002.

Collection of Articles:

This document collects the research report prepared by the participating students of PRESS-2001. The topics range from theoretical to experimental, from the very large scale (big bang, galaxies) to nanoscale (random laser). Students, in general, enjoyed the experience of going through the process of carrying out a research project. Apart from minor editorial changes, the articles are presented here in the form submitted by the students. We hope that by publishing and distributing these reports to high school teachers and students, students can have a share of the flavor of what research projects actually look like and what sixth-formers can do. It is also hoped that teachers, after reading this collection of reports, may gain some ideas on leading project works in the future. If some students are inspired to do science or related disciplines after joining PRESS or reading these reports, we will not be surprised.

Acknowledgments:

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Department of Physics and Materials Science, City University of Hong Kong

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Department of Physics, Hong Kong University of Science and Technology
Department of Applied Physics, Hong Kong Polytechnic University
Department of Physics, University of Hong Kong
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PRESS-2002:

The quality of the students' works in the PRESS project and the positive responses from the students and faculties have impressed the audience at the PSHK 2002 Annual Conference. Members participated in the annual general meeting agreed that the PRESS project should continue, as long as PSHK and the member institutions have the resources to support it.

Application to PRESS-2002 will start in September 2002, and we look forward to see more students become interested in Science.