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Astronomy Education for Physics Students

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Abstract. Astronomy is a very interesting subject for undergraduate students studying physics. In this paper, we report astronomy education for undergraduate students in the Physics Department of Guangzhou University, and how we are teaching astronomy to the students. Astrophysics has been rapidly developing since 1994, when the center for astrophysics was founded. Now, astrophysics has become a key subject in Guangdong Province, and the Astronomy Science and Technology Research Laboratory one of the key laboratories of the Department of Education of the Guangdong Province. Many undergraduate students, working under the tutorship of faculty members completed their thesis at the Center for Astrophysics in Guangzhou.

Key words. Education—astronomy—thesis.

1. Introduction

Guangzhou, an ancient city with more than 2200 years of history, is one of the cradles of modern astronomy in China (Chen 2003). Here, there is still a dome constructed in 1929 in Sun Yat-Sen University, which had a Department of Mathematics and Astronomy that was started in 1925 and directed by Prof. Zhang Yun, who studied astronomy in France. The astronomy education and research were almost closed in 1952, when staff members and students in astronomy moved to Nanjing University (see Fan *et al.* 2009a, 2009b).

2. Astronomy education

The new Center for Astrophysics was established in November 1994 in Guangzhou Teacher's College. In that year, Prof. Huang Zhuo-He, the Head of the Department of Physics, approved astronomy as an optional course for senior students. The course foresaw 36 hours to introduce astronomy and at the end students were required to write an essay to get two credits.

Students have many ideas in their minds, such as black hole, white hole, worm hole, Big Bang, Milky Way, and some Chinese legends, such as ChangE flying to the Moon, Pleiades the old tale, and the Cowherd and the Weaving Maid, etc.

We introduced the students to the history of astronomy development, the significance of astronomy in our everyday life and the promotion in sciences, the basic knowledge of astronomy, the instruments for astronomical observations, and the methods for astrophysics research. We tried our best to show the words and the corresponding pictures of some objects. They paid a lot of attention in the class and were curious to ask questions. Some of the students who learnt astronomy in the classes are now leading teachers in out-of-class activities in the middle school.

There is a 30-cm optical telescope mounted in the science laboratory building, and there is a professional laboratory technician. The students and others can visit the laboratory and use the telescope to observe the Sun in the day, and make other observations in the night. The students have used the telescope to do research work including their thesis and innovation competitions. We have organized interesting classes on astronomy for undergraduate students, during holidays and other spare time.

Astrophysics has since been developing very fast and has become a key subject in the Province, the Astronomy Science and Technology Research Laboratory, one of the key laboratory of the Department of Education of Guangdong Province (Fan 2009).

3. Outreach activities

Being the only center for Astrophysics in Guangdong Province, one of our responsibilities is the public outreach. We give popular astronomy talks for Guangzhou Municipality citizens in Guangzhou Library. We give popular science talks for undergraduate students, middle school students, and even primary school students. We encourage them to learn science and use science; learn the scientific spirit from scientists. In addition, the 30-cm telescope is open to all students in the Guangzhou region.

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