

The 19th Asian Physics Olympiad in Hanoi, Vietnam

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The 19th Asian Physics Olympiad (APhO) was jointly organized by Hanoi University of Science and Technology (HUST) and the Vietnam Physical Society with the strong support of the Vietnamese government through the Vietnamese Ministry of Education and Training (MoET). A total of 25 countries with a total of 185 students and about 100 leaders and observers participated in the event.

For the competition, the students sat for two grueling five-hour examinations. The experimental question tested the students' skills in the field of giant magnetoresistance. The discovery of giant magnetoresistance led to the Nobel Prize for Albert Fert and Peter Grünberg. Sadly, Peter Grünberg died exactly one month ago on April 11, 2018. The theory questions were equally challenging. The first question tested the students' understanding of laser trapping techniques for neutral atoms, the second question centered around space elevator and the last question focused on thermoelectric effects and their applications to thermoelectric generator and refrigerator. Although a good understanding of laser trapping requires quantum mechanics, the first question made full use of semi-classical analysis to discuss how neutral atoms are trapped in optical potentials.

The Minister of Education and Training officiated the opening ceremony. In his welcome speech to the delegates, Prof. Phung Xuan Nha expressed his congratulations to all of the contestants and remarked that they were all young, talented and enthusiastic members of the scientific community who were pursuing new knowledge for the development of physics. He also hoped that the activities held during the Olympiad would lead to unforgettable experiences and memories of their stay in Vietnam.



Fig. 1: Prof. Phung Xuan Nha, Minister of Education and Training (MOET) of Vietnam, delivering his speech at the opening ceremony of the Physics Olympiad.

At the closing ceremony of the Olympiad, the president of the International Board for the APhO, Prof. Leong-Chuan Kwek, thanked the Vietnamese government and the Hanoi University of Science and Technology for their commitment and dedication and their excellent organization of the event. He urged the Vietnamese government to continue to invest and attract the best minds of their country to enhance research and development and to contribute to the scientific environment in Vietnam.

Many leaders, comprised principally of university professors, officials and teachers from the Ministry of Education from various countries and regions, were deeply impressed with the quality of the examination questions



Fig. 2: Students working on their experimental problems at the Olympiad. The experimental problem was an interesting question on giant magnetoresistance.

and the warm hospitality of the organizers throughout the event.

At the end of the competition, a total of 33 gold medals, 13 silver medals, 24 bronze medals and 30 honorable mentions were given out to the participants. Chen Tianyang from China received the Absolute Winner Award, Xu Yizhou(China) received the Best Performance in Theoretical Examination Award, and Grigorii Bobkov(Russia) received the Best Performance in Ex-



Fig. 3: Students enjoying their boat trip in the beautiful landscape of Trang An in Ninh Binh province in Vietnam.

perimental Examination Award. The Association of Asia Pacific Physical Societies typically also awards two prizes at the Olympiad: Chen Tianyang of China received the Best Male Contestant Award and Gaukhartas Alina (Kazakhstan) received the Best Female Contestant Award. The Material Research Society of Singapore presented two prizes: Shang-Hsuan Chung(Chinese Taipei) for work on the theory question and Joshua Wei-Hern Teo (Singapore) for work on the experimental question.



Nguyen The Khoi is the chairman for the Academic Committee of the 19th Asian Physics Olympiad. He has been a leader for the Vietnam team in several past Asian Physics Olympiads. Prof. Nguyen The Khoi is also a professor of physics at Hanoi National University of Education. He has published extensively on research in physics and physics education.