

Form B-2
(FY2020)
Must be typed

Date (日付)
21/10/2020 (Date/Month/Year: 日/月/年)

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ事業 実施報告書)

- Fellow's name (講師氏名): Le Bin Ho (ID No. P20021)
- Name and title of the accompanying person (講義補助者の職・氏名)
n/a
- Participating school (学校名): Iwate Prefectural Kamaishi High School
- Date (実施日時): 20/10/2020 (Date/Month/Year: 日/月/年)
- Lecture title (講義題目):
Introduction to quantum computing (量子コンピューティング)
- Lecture format (講義形式):
 Lecture time (講義時間) 65 min (分), Q&A time (質疑応答時間) 15 min (分)
 Lecture style (ex.: used projector, conducted experiments)
(講義方法 (例: プロジェクター使用による講義、実験・実習の有無など))
I used PowerPoint slides and a projector.

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.
At first, I introduced myself, my hometown, and my educational background. I have an intense love for physics for my favorite, which I have pursued for many years. I also briefly talked about Vietnam - my country, and a comparison between Vietnam and Japan. There are many exciting comparisons, including area, national shape, nature, cuisine, and culture, thereby partially helping students imagine Vietnam. Then, I also described the reason that I chose Japan to study. Throughout this, I inspire the students for not giving up their dreams and pursue their goals.

After that, I focused my talk on the main concept of quantum computing. My research is quantum mechanics, where it can be applied directly to quantum information and quantum computation. I introduced some critical definitions for quantum computing, including quantization, superposition, qubit, entanglement, quantum gates, quantum circuits, and several quantum algorithms. At first, the "quantization" is described as a discrete set of values. From that discrete set of values, the "superposition" (many levels) is given. Then, a system with two-level is called "qubit," and two qubits can "entangle" with each other. Then, I explained to students detailed quantum gates, quantum circuits, and several quantum algorithms. By guiding step-by-step on these definitions,

SD

※弊会記入欄

students can understand how a quantum computer works and what problems it can solve.

Finally, I also presented some existing quantum computers such as IBM quantum computer, Google quantum computer, and D-wave quantum computer. Up to now, we can access these computers for doing some simple states and for research purposes. High school students also can use these quantum computers to study simple quantum circuits and algorithms.

□Other noteworthy information (その他特筆すべき事項):

It is unfortunate that I did not have much time to attend the class and interact with the students. However, I am really impressed with the serious preparation of the teachers and students of the school. Although a few questions are raised, these questions all express a real desire to learn new things and pursue future studies.

- Impressions and comments from the accompanying person (講義補助者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。):