

**Form B-2**  
**(FY2022)**  
**Must be typed**

Date (日付)  
21<sup>st</sup>/Oct./2022 (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): Han WEI (ID No. \_\_\_\_\_)

- Name and title of the lecture assistant (講義補助者の職・氏名)

None

- Participating school (学校名): Chiba Prefectural Chosei High School

- Date (実施日時): 12nd/Oct./2022 (Date/Month/Year:日/月/年)

- Lecture title (講義題目):

Our Universe and Gravity: Where Do We Come From?

- Lecture format (講義形式):

◆  Onsite ・  Online (Please choose one.)( 対面 ・  オンライン(どちらか選択ください。))

◆ Lecture time (講義時間) 90 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))

used projector

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.

I explained in plain English and Japanese that gravity describes the evolution of the universe. According to Hubble's law, the universe is expanding, i.e., the universe in the past was smaller. Just as compressed air gets hot, we know that the universe was also hotter in the past. Due to the finite speed of light, to look far is to look into the past, and when looking at the most distant point, the cosmic microwave background radiation is seen as the afterglow of the Big Bang. The observational result suggests the existence of cosmic inflation in the early universe. Inflation, considering quantum mechanics, creates fluctuations that are the seeds for the formation of stars, galaxies, and us, the human beings. To know the universe is to know ourselves.

After these explanations, I also explained that a change in the theory of gravity would lead to a different evolution of the universe, which might eliminate the unnatural points of current observations, and explained how observations of gravitational waves using laser interferometers and pulsar timing arrays are currently developed as a way to test the theory of gravity. I also talked about my recent research fields briefly. I answered the students' several questions.