

(For JSPS Fellow)

Form B-5

Date (日付)

24/06/2013 (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): Waidyasooriya Hasitha Muthumala (ID No. P11347)- Participating school (学校名): Odate Homei High School, Akita- Date (実施日時): 19/06/2013 (Date/Month/Year: 日/月/年)- Lecture title (講演題目): (in English) Heterogeneous computing for future supercomputers(in Japanese) ヘテロジニアスコンピューティングによる未来のスーパーコンピュータ

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

Computers are made of billions of small units called transistors. Transistors are basically a switch and their on/off states can be controlled by an input signal, which we often called "data". This lecture briefly explains how to design a computer and what would be the future of supercomputers.

Mainly, there are two types of computers; general purpose computers and application specific computers. General purpose computers are used in PCs, cell phones etc. They are very cheap and can be programmed to do many tasks. However, their speed is very low and takes a lot of power. Application specific computers are specialized for only one task. They are very fast and low-power. In our research, we use heterogeneous multicore processors that include both general purpose processors such as CPUs and application specific accelerators. If the tasks are assigned to different processor cores accurately, all cores work together to increase the overall performance. For the practical applications of heterogeneous computing, we are designing a super computer for DNA sequence alignment.

- Language used (使用言語): English and Japanese

- Lecture format (講演形式):

◆Lecture time (講演時間) 55 min (分), Q&A time (質疑応答時間) 15 min (分)

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

Power point presentation

Must be typed

- ◆ Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

Provided by myself

- ◆ Name and title of accompanied person (同行者 職・氏名)

- ◆ Other note worthy information (その他特筆すべき事項):
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- Impressions and opinions from accompanied person (同行者の方から、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。):