

Form B-5

Date (日付)

15/07/2011 (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): Yu-Lin CHUNG (ID No. P 10381)

- Participating school (学校名): 彦根東高校

- Date (実施日時): 11/07/2011 (Date/Month/Year: 日/月/
年)

- Lecture title (講演題目): (in English) Subduction Zone Earthquake versus Large-Scale
Structure: The Influence of Coming Long-Period Ground Motion Hazard

(in Japanese) 巨大地震と大規模構造物:長周期地震動による影響

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

Occurrences of large earthquakes having a magnitude over eight are predicted along the subduction zone running in the southwestern part of Japan. Such subduction zone earthquakes are known to generate long-period ground motions in land and the energy input large-scale structures such as high-rise buildings. The energy into high-rise buildings could exceed significantly the energy input anticipated in the current seismic design. Especially for high-rise steel moment frames designed and constructed in early days of such construction, i.e., 1970s in Japan, large cumulative deformations may cause serious damage including fractures in their beam-to-column connections. Also, the large shaking and long duration could cause serious damages on the non-structural components and lead to the functional ability problems in the buildings.

To this end, first, a series of shaking table tests were conducted to evaluate the performance of an 80 m high 21-story building. Structural safety of the high-rise buildings while subjected to the long-period ground motions were evaluated by the tests. Second, a large scale shaking table test on the non-structural components, including the furniture in the interior space, was tested to evaluate their performance in the earthquake. Various types of retrofit methods of structural and non-structural components were proposed and tested to evaluate their performance.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 30 min (分), Q&A time (質疑応答時間) 30 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))

プロジェクター使用による講演

◆ 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))

講師本人による日本語説明

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

同行者なし

◆ 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。):