

第 89 回フロンティア材料研究所講演会

Special lecture on

Theory and implementation of next-generation performance-based assessment

Prof. Tony Yang, University of British Columbia

(Visiting scholar of Materials and Structural Laboratory at Tokyo Institute of Technology)

Time and Date: 16:00—17:30, Dec 18th (Tuesday), 2018

(2018 年 12 月 18 日火曜日 16:00—17:30)

Place: Meeting Room2, 2F of Suzukake Hall

(すずかけホール 2 階, 集会室 2)

Summary

The next-generation performance-based earthquake engineering aims to quantify the seismic performance of the structure using metrics that are of immediate use to both engineers and stakeholders. In this presentation, a rigorous yet practical implementation of the next-generation performance-based earthquake engineering methodology is presented. The methodology consistently accounts the uncertainties in the seismic hazard, structural response, resulting damage, and repair costs. The outcome of the analysis will allow the building owners and other stakeholders to make informed risk-based management decisions. The proposed procedure has been adopted by the Applied Technology Council (ATC-58 research team) to represent the next-generation performance-based seismic design procedures for new and existing buildings in the United States. The procedure is consistent with common building design, construction, and analysis practices, where it can be readily adopted in structural engineering practice today. The presented methodology is implemented to evaluate the seismic performance of a high-value contents laboratory facility in Vancouver, Canada. The study demonstrates the seismic loss of facilities that can be readily used by practicing engineers. The results show the first benchmark study to quantify the performance of code-based design and provide valuable information for engineers and facility stakeholders to make informed risk management decisions.

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