機械工学セミナー
Mechanical Engineering Seminar

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主催: 慶應義塾大学理工学部機械工学科
Department of Mechanical Engineering, Keio University

日 時 (Date):
2019年6月4日（火）(June. 4, 2019 (Tue.)) 18:15~19:30

場 所 (Venue):
セミナールーム 1 (Seminar Room 1) (14-201)

講演題目 (Title):

Virtual Fracture Testing of Large-Scale Mechanical Components using Finite Element Damage Analysis

講演者(Speaker):

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Department of Mechanical Engineering
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Abstract:

Structural integrity assessment of large-scale mechanical components is very important in many industries, for instance in energy and transportation sectors. Application of proper structural integrity assessment in design, inspection and maintenance including repair, can lead to huge economical benefits for industries. Engineering critical assessment (ECA) using fatigue and fracture mechanics is one key subject in structural integrity assessment. ECA is rather easily performed based on simple equations given in various industry-specific procedures, Codes or Standards. Such simple equations have been developed from extensive test results using small-scale laboratory and large-scale components accumulated for a long time. However, such approach becomes more difficult these days due to introduction of new materials and fabrication technologies. An efficient approach is to use virtual testing using FE damage analysis to simulate fracture of large-scale components. The present talk presents some examples of virtual fracture testing of large-scale mechanical components.

This talk consists of two parts. The first part explains how I get into this challenging subject and tackle this problem. The second part covers some recent results on fracture simulation of large-scale piping components. This talk is concluded by giving some remaining topics which give potential benefits from industrial view point.

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