Tokyo University of Agriculture and Technology
Institute of Global Innovation Research

グローバルイノベーション研究院　公開セミナー
Institute of Global Innovation Research Open Seminar

Computational methods in materials engineering

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言語/英語
Language/English

どなたでもご聴講いただけます
Everyone is welcome to attend.

Date and time

Wednesday
February 12, 2020
10:00 ~ 11:30

Venue

東京農工大学 小金井キャンパス
9号館　5階 505会議室
Meeting Room 505 , 5th. Fl.,
Building 9, Koganei Campus, TUAT

Abstract

Until the end of the 20th century, the lack of absolute and cheap computer resources severely restricted the use of computers in materials engineering research. However, the continuing improvements in computing performance-to-cost has now made it feasible to carry out large scale research simulations on standard desktop computers. For example, the performance of the world's fastest supercomputer in the early 1990s (170.4 GFLOPS) used at the wind tunnel of the National Aerospace Laboratory, Tokyo, can now be achieved for less than US$ 100. In parallel with these improvements, the rise of open source operating systems, programming languages and research software means that materials engineering research can be carried at low cost. It is therefore becoming increasing important that materials and mechanical engineers are able to programme and work with open source software. In this presentation the author will give examples of computational methods in materials engineering that they have recently been involved with, including the packing of powders, statistical failure of brittle materials, analysis of composite materials and optimisation of thermal barrier coatings. .

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