Institute of SCIENCE TOKYO

Center for Information Infrastructure

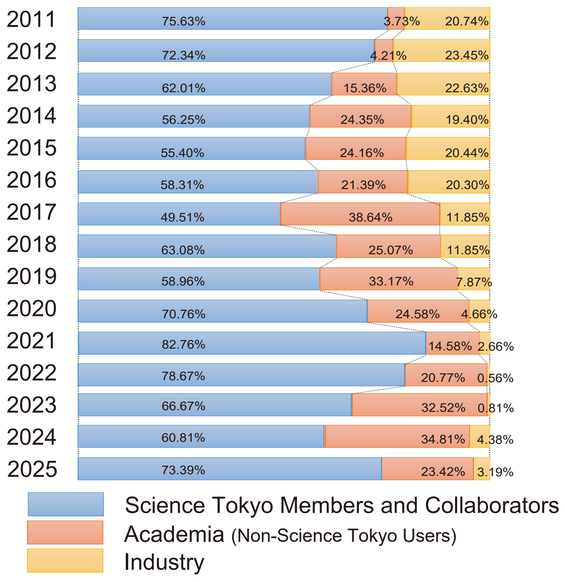
Joint Usage of TSUBAME

Partnership Resource Allocations

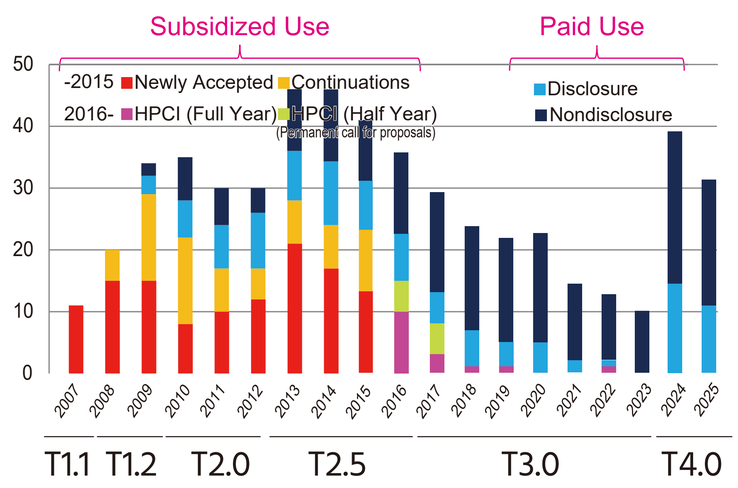
Industrial and Collaborative Use of TSUBAME

TSUBAME is open to academia and industries. Industrial use started in FY2007.

TSUBAME Resource Usage Profile



The Number of Industrial Projects



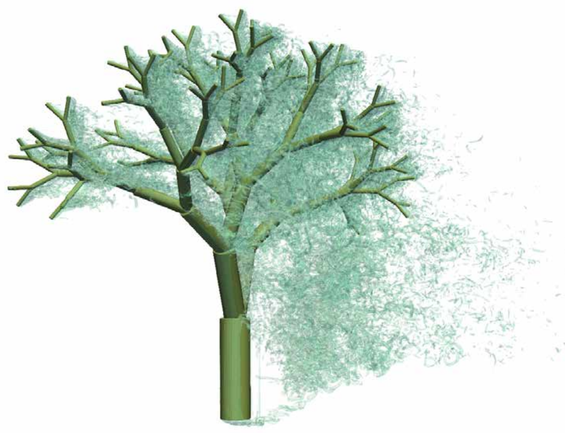
How to Use TSUBAME?

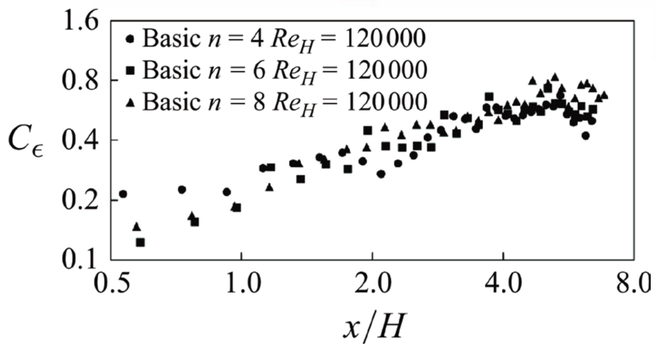
Intellectual Property Rights are reserved completely by the users and are not required to be shared with Science Tokyo.

User Types	Programs	Remarks
Science Tokyo Students and Faculty Members		All Students have TSUBAME accounts.
Non-Science Tokyo Users (Academic and Industrial Users)	Partnership Resource Allocations	
	HPCI/JHPCN	Supported by MEXT
Collaborators with Science Tokyo Professors (Domestic / International)	Research Collaboration based on Research Fund or Industrial Contracts	

Achievements of joint usage (in HPCI and JHPCN)

Large-scale fluid simulation of fractal tree (jh250082)

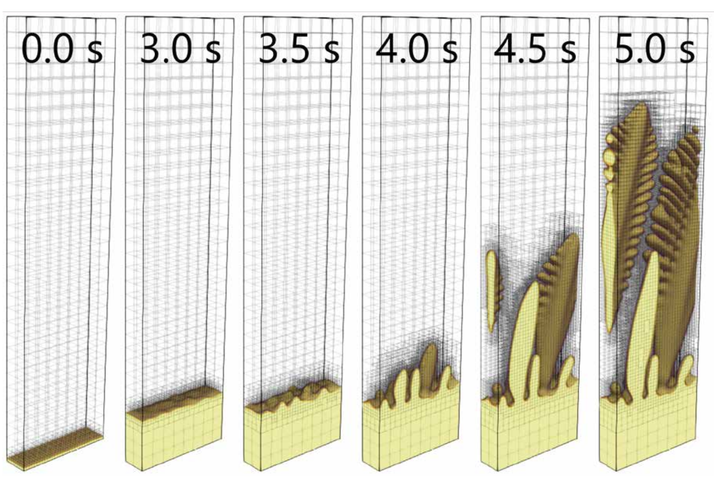




Using TSUBAME4.0, the supercomputer system at Institute of Science Tokyo, we successfully conducted numerical flow simulations of arrays of fractal trees generated using a parametric L-system at the highest tree-height-based Reynolds number achieved to date. Systematic investigations across a range of conditions revealed that, at high Reynolds numbers, the wake region exhibiting non-equilibrium dissipation extends approximately five tree heights downstream, and that this non-equilibrium region is continuously sustained in arrays of evenly spaced trees.

Cited from: **Y. Yin et al., J. Fluid Mech., 1007, A45 (2025)**

AMR based phase-field data assimilation method (jh250030)



Numerical prediction of microstructural evolution helps accelerate materials development through digital transformation, but missing material property data required as simulation inputs remain a major challenge. Data assimilation integrating time-resolved in situ X-ray observations at large-scale synchrotron radiation facilities with phase-field (PF) simulations offers a promising solution. However, running multiple PF simulations in parallel entails substantial computational costs. Here, we developed a data assimilation method incorporating adaptive mesh refinement (AMR), focusing on perturbations at initially planar interfaces during the early stages of solidification. AMR enables efficient simulation of this process. Our results demonstrate the potential of this approach for effectively estimating material properties during morphological evolution from an initially planar interface. Cited from: **A. Yamamura et al., J. Mater. Res. Technol., 39 (2025) 4226-4233**

Joint usage via HPCI and JHPCN project

The innovative High Performance Computing Infrastructure (HPCI)

National grid infrastructure for HPC research

Resources

- 15 supercomputers in Japan, including TSUBAME4.0
- 90PB global shared storage to share data

Status

- 14 projects use TSUBAME4.0 for the HPCI project in FY2025

For more details, please go to booth #4857 “Research Organization for Information Science & Technology (RIST)”

Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures (JHPCN)

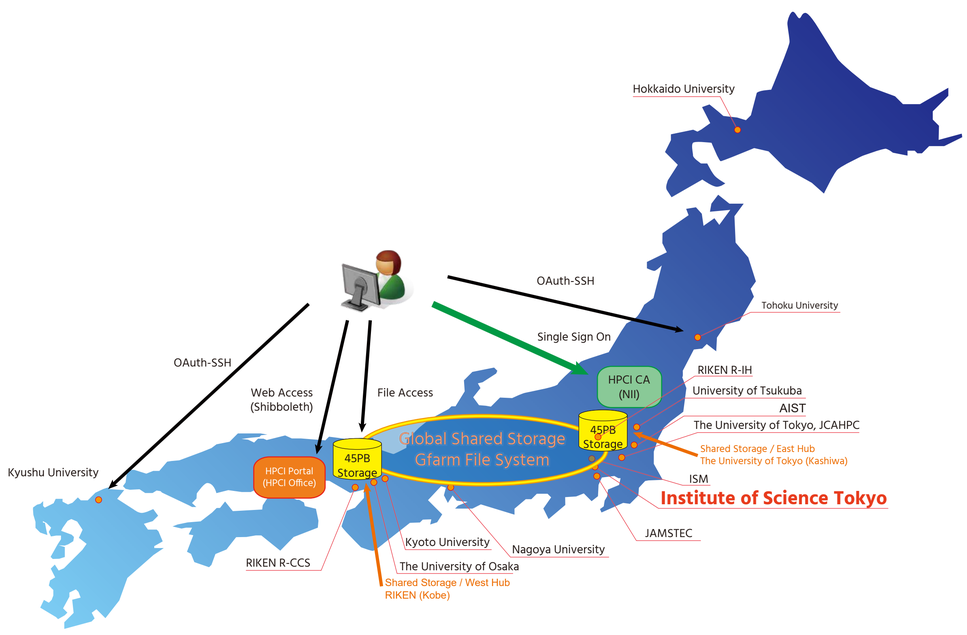
The Network-Type Research Center aims to contribute to the advancement and permanent development of the academic and research infrastructure of Japan

Resource Providers

- 8 supercomputer centers in Japan, including TSUBAME4.0

Status of Joint Research Projects

- 12 projects use TSUBAME4.0, and total 74 projects are adopted as JHPCN projects in FY2025, including international and industry joint research projects



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