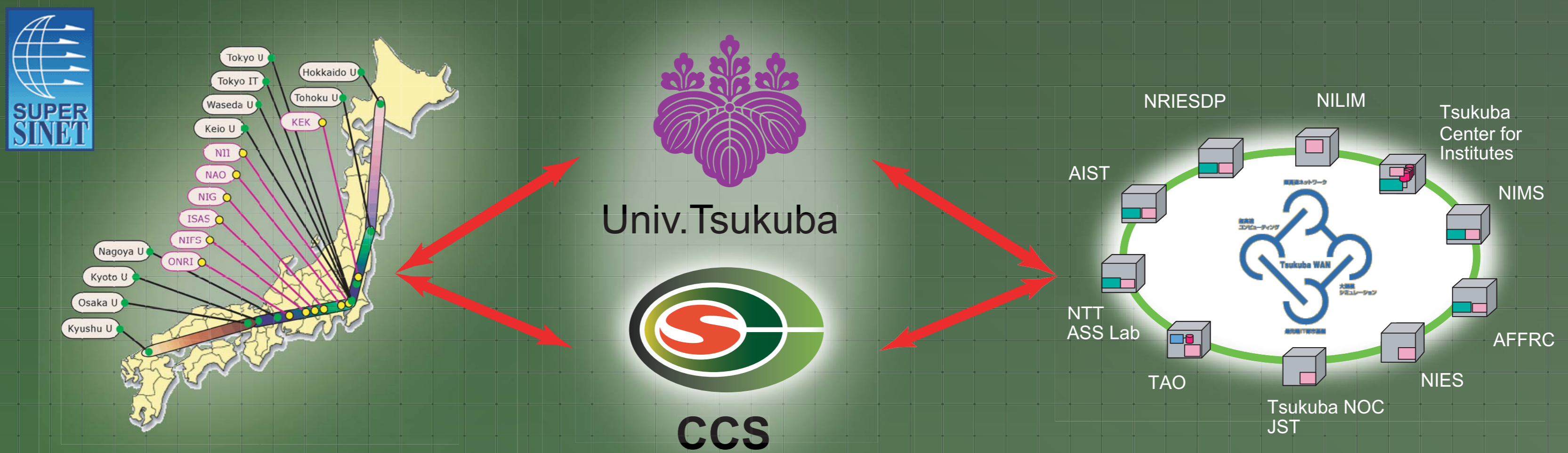# Network Environment and Collaborative Works

SuperSINET and Tsukuba-WAN

University of Tsukuba is at the junction point of two very high-speed wide area networks in Japan, SuperSINET and Tsukuba-WAN. SuperSINET is the largest and fastest network infrastructure for universities and research institutes under MEXT (Ministry of Education, Culture, Sports, Science and Technology) for wide variety of research projects. Tsukuba-WAN is a regional wide area network especially dedicated for multiple disciplinary collaborative researches in Tsukuba Science City.

CCS has three connections to SuperSINET and one connection to Tsukuba-WAN for collaborative works such as Inter-Campus Grid System, Lattice QCD database sharing and Heterogeneous Computing for Astrophysics.

Collaborative works over dedicated WAN

- ### Lattice QCD Database Sharing (SuperSINET)
  A large scale database for QCD configuration provided by calculation with CP-PACS and other HPC facilities is shared with KEK and other high energy particle physics research institutes and universities.

- ### Inter-Campus Grid System (SuperSINET)
  Constructing wide area Grid environment between two universities, University of Tsukuba and Tokyo Institute of Technology, for developing various Grid middleware as well as experimental execution of practical HPC applications based on multiple PC cluster systems.

- ### Heterogeneous Computing on AstroPhysics (SuperSINET)
  HMCS-G (Grid-enabled Heterogeneous Multi-Computer System) with PC clusters and special purpose processor for gravity, GRAPE-6, are cooperated in remote environment with high-speed network for the simulation on radiation hydrodynamics.

- ### Regional Grid research in Tsukuba Science City (Tsukuba-WAN)
  CCS and AIST (National Institute of Advanced Industrial Science and Technology, MITI) share PC cluster resources for developing Grid middleware and applications.

International Lattice Data Grid and Lattice QCD Archive

International Lattice Data Grid (ILDG) is an international network of research institutes in lattice QCD to co-ordinate the development of lattice QCD grids and to build a global grid to support international collaborations and data exchange. CCS is one of the main hub institutes of ILDG.
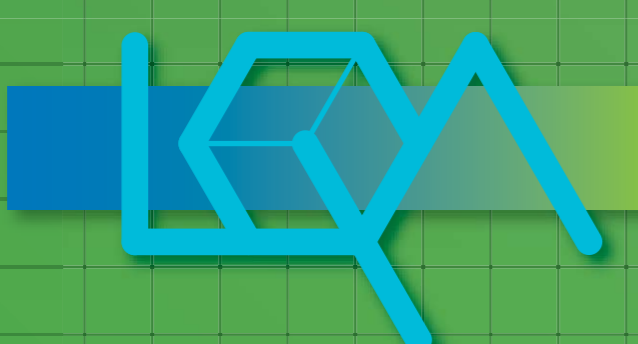
As an activity for ILDG, CCS constructed the Lattice QCD Archive (LQA) to store QCD configurations generated on CP-PACS and to make them available to lattice QCD community world-wide via internet.