Multidisciplinary Cooperative Research Program 2019

# **Report of Contributions**

Quantum dynamics in nuclei…

Contribution ID : 1

Type : MCRP-M

# Quantum dynamics in nuclei and neutron stars

Number of project members

7

Cygnus: Project code NUCLDFT

Cygnus: Requested [awarded] number of nodes 16 [16]

Cygnus: Requested [awarded] node-hour product 5000 [5000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i001

OFP: Requested [awarded] number of nodes 2048 [1024]

OFP: Requested [awarded] node-hour product 600000 [225000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : NAKATSUKASA, Takashi (University of Tsukuba)

Multidisciplin  $\cdots$  / Report of Contributions Quantum dynamics in nuclei  $\cdots$ 

### Track Classification: Nuclear Physics(原子核分野)

Contribution ID : 2

Type : MCRP-M

## 2+1 Flavor Lattice QCD with the Physical Quark Masses

Number of project members

4

Cygnus: Project code LATTICE

Cygnus: Requested [awarded] number of nodes 64 [32]

Cygnus: Requested [awarded] node-hour product 100000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) 50 [50]

OFP: Project code xg18i039

OFP: Requested [awarded] number of nodes 2048 [1024]

OFP: Requested [awarded] node-hour product 1000000 [225000]

OFP: Requested [awarded] disk capacity (TB) 400 [400]

Primary author(s) : KURAMASHI, Yoshinobu

Multidisciplin  $\cdots$  / Report of Contributions 2+1 Flavor Lattice QCD with  $\cdots$ 

Track Classification: Particle Physics(素粒子分野)

Multidisciplin ··· / Report of Contributions

Impedance characteristics of …

Contribution ID : 5

Type : MCRP-S

# Impedance characteristics of variable-range hopping conduction

Number of project members

3

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i005]

OFP: Requested [awarded] number of nodes 256 [256]

OFP: Requested [awarded] node-hour product 89600 [50000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s): Dr HAYASHI, Toshiaki (NTT Basic Research Laboratories)

Multidisciplin ··· / Report of Contributions Impedance characteristics of ···

#### Track Classification: Material Science(物質科学分野)

Multidisciplin ··· / Report of Contributions

Study of the origin of type Ia…

Contribution ID : 6

Type : MCRP-M

# Study of the origin of type la supernovae

Number of project members

4

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i004

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300,000 [225,000]

OFP: Requested [awarded] disk capacity (TB) 40 [40]

Primary author(s) : TANIKAWA, Ataru; IWASAWA, Masaki (riken)

Multidisciplin  $\cdots$  / Report of Contributions Study of the origin of type Ia  $\cdots$ 

Track Classification: Astrophysics(宇宙分野)

Membrane Penetrations of C…

Contribution ID: 7

Type : MCRP-M

## Membrane Penetrations of Cyclic Peptides Predicted by Parallel Cascade Molecular Dynamics Simulation

9

Cygnus: Project code LSC

Cygnus: Requested [awarded] number of nodes 24 [24]

Cygnus: Requested [awarded] node-hour product 50000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) 20 [20]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s): Dr HARADA, Ryuhei (Center for Computational Sciences, University of Tsukuba)

Track Classification: Life Science(生命分野)

Improvement of reliability of …

Contribution ID : 8

Type : MCRP-M

# Improvement of reliability of nuclear matrix element of neutrinoless double- $\beta$ decay

Number of project members

2

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i006

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 190,000 [142,500]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Multidisciplin ··· / Report of Contributions

Primary author(s): IWATA, Yoritaka (Tokyo Institute of Technology); TERASAKI, Jun (Czech Technical University in Prague)

Track Classification: Nuclear Physics(原子核分野)

Study on numerical library o …

Contribution ID : 9

Type : MCRP-M

# Study on numerical library on many-core/GPU clusters

Number of project members 5
Cygnus: Project code NUMLIB
Cygnus: Requested [awarded] number of nodes 32 [32]
Cygnus: Requested [awarded] node-hour product 5000 [5000]
Cygnus: Requested [awarded] disk capacity (TB) 15 [15]
OFP: Project code xg18i009
OFP: Requested [awarded] number of nodes 2048 [2048]
OFP: Requested [awarded] node-hour product 80000 [60000]
OFP: Requested [awarded] disk capacity (TB) 20 [20]

 $\label{eq:primary author} Primary \ author(s): \ \ TAKAHASHI, \ Daisuke \ (University \ of \ Tsukuba)$ 

April 29, 2024

Track Classification: High-performance computing system(超高速計算システム分野)

Contribution ID : 10

Type : MCRP-M

# Strong CP problem in QCD on the lattice

Number of project members

4

Cygnus: Project code STRONGCPC

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 50000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) 15[15]

OFP: Project code [xg19i010]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : KITANO, Ryuichiro (KEK)

Multidisciplin  $\cdots$  / Report of Contributions  $$$ Strong CP problem in QCD o \cdots $$$ 

### Track Classification: Particle Physics(素粒子分野)

Development of parallel lang  $\cdots$ 

Contribution ID : 11

Type : MCRP-M

## Development of parallel language XcalableMP 2.0 with high performance portability (1)

Number of project members 10
Cygnus: Project code XMP
Cygnus: Requested [awarded] number of nodes 32 [32]
Cygnus: Requested [awarded] node-hour product 3000 [3000]
Cygnus: Requested [awarded] disk capacity (TB) [15]
OFP: Project code xg18i003
OFP: Requested [awarded] number of nodes 2048 [2048]
OFP: Requested [awarded] node-hour product 52000 [50000] (2000)
OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s) : Dr NAKAO, Masahiro (RIKEN)

Track Classification: High-performance computing system(超高速計算システム分 野)

Contribution ID : 12

Type : MCRP-M

## QCD hadron spectrum on very large volume lattice

Number of project members

2

Cygnus: Project code LATSPEC

Cygnus: Requested [awarded] number of nodes 16 [16]

Cygnus: Requested [awarded] node-hour product 50,000 [30,000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code [xg19i012]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300,000 [225,000]

OFP: Requested [awarded] disk capacity (TB) 70 [70]

Primary author(s) : UKITA, Naoya (University of Tsukuba)

Multidisciplin  $\cdots$  / Report of Contributions  $$\operatorname{QCD}\xspace$  QCD hadron spectrum on ve $\cdots$ 

### Track Classification: Particle Physics(素粒子分野)

Multidisciplin ··· / Report of Contributions

Molecular dynamics simulati…

Contribution ID: 13

Type : MCRP-M

### Molecular dynamics simulation for the elucidation of the molecular diffusion behavior in the CO2 hydrate

Number of project members

3

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i024

OFP: Requested [awarded] number of nodes 30 [30]

OFP: Requested [awarded] node-hour product 230000 [172500]

OFP: Requested [awarded] disk capacity (TB) [20]

Multidisciplin ··· / Report of Contributions Molecular dynamics simulati ···

Primary author(s) : ABE, Yutaka (Professor)

Track Classification: Material Science(物質科学分野)

In silico molecular design of …

Contribution ID: 14

Type : MCRP-S

# In silico molecular design of transmembrane peptide induces lipid flipping

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i014]

OFP: Requested [awarded] number of nodes 5 [5]

OFP: Requested [awarded] node-hour product 45000 [45000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : SAITO, Hiroaki (QBiC, RIKEN)

April 29, 2024

Multidisciplin  $\cdots$  / Report of Contributions In silico molecular design of  $\cdots$ 

### Track Classification: Chemistry(化学分野)

Contribution ID: 15

Type : MCRP-S

## Theoretical Studies on the dynamics of Atoms and Molecules in Strong Laser Fields

Number of project members

1

Cygnus: Project code LASER

Cygnus: Requested [awarded] number of nodes 16[16]

Cygnus: Requested [awarded] node-hour product 4000 [3600]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i047

OFP: Requested [awarded] number of nodes 128 [128]

OFP: Requested [awarded] node-hour product 30000 [28500]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s): TONG, Xiao-Min (Center for Computational Science, University of Tsukuba, Japan)

Track Classification: Material Science(物質科学分野)

Theoretical Study on the  $\cdots$ 

Contribution ID : 16

Type : MCRP-S

## Theoretical Study on the Aggregation-Induced Emission

Number of project members 2
Cygnus: Project code 希望名未記入
Cygnus: Requested [awarded] number of nodes 16 [16]
Cygnus: Requested [awarded] node-hour product 5000 [5000]
Cygnus: Requested [awarded] disk capacity (TB) 15 [15]
OFP: Project code [xg19i016]
OFP: Requested [awarded] number of nodes 64 [64]
OFP: Requested [awarded] node-hour product 50000 [50000]
OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s): YAMAMOTO, Norifumi (Chiba Institute of Technology)

Multidisciplin… / Report of Contributions

Theoretical Study on the  $\cdots$ 

### Track Classification: Chemistry(化学分野)

Contribution ID : 17

Type : MCRP-S

# Development of Parallel Graph Mining Algorithms

Number of project members

3

Cygnus: Project code KDEGRAPH

Cygnus: Requested [awarded] number of nodes 16 [16]

Cygnus: Requested [awarded] node-hour product 5000 [5000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i034

OFP: Requested [awarded] number of nodes 64 [64]

OFP: Requested [awarded] node-hour product 4800 [4800]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : SHIOKAWA, Hiroaki (University of Tsukuba)

### Track Classification: Computational informatics(計算情報学分野)

Development of parallel lang…

Contribution ID: 18

Type : MCRP-FPGA

## Development of parallel language XcalableMP 2.0 with high performance portability (2)

Number of project members

7

Cygnus: Project code XMP [XMPF]

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 1000 [1000]

Cygnus: Requested [awarded] disk capacity (TB) [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : NAKAO, Masahiro (RIKEN)

Test of new physics models t…

Contribution ID : 19

Type : MCRP-L

# Test of new physics models through B meson semileptonic decays

Number of project members

6

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i016

OFP: Requested [awarded] number of nodes 2048 [2048]

OFP: Requested [awarded] node-hour product 829440 [829440]

OFP: Requested [awarded] disk capacity (TB) 100 [100]

Primary author(s) : KANEKO, Takashi (KEK)

April 29, 2024

Multidisciplin  $\cdots$  / Report of Contributions Test of new physics models t  $\cdots$ 

### Track Classification: Particle Physics(素粒子分野)

Multidisciplin ··· / Report of Contributions

Ab initio calculation of nucle…

Contribution ID : 20

Type : MCRP-M

# Ab initio calculation of nuclear clusters

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i020]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300,000 [225,000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : AOYAMA, Shigeyoshi

Multidisciplin  $\cdots$  / Report of Contributions Ab initio calculation of nucle  $\cdots$ 

### Track Classification: Nuclear Physics(原子核分野)
HPC application and system …

Contribution ID : 21

Type : MCRP-FPGA

### HPC application and system software development on FPGA-GPU combined platform

Number of project members

15

Cygnus: Project code CCUSC

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 10000 [6000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : Prof. BOKU, Taisuke (University of Tsukuba)

Structure Formation in the U $\cdots$ 

Contribution ID : 22

Type : MCRP-S

### Structure Formation in the Universe using Radiation Hydrodynamic Simulations

Number of project members 24

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i022]

OFP: Requested [awarded] number of nodes 64[64]

OFP: Requested [awarded] node-hour product 46,900[46,900]

OFP: Requested [awarded] disk capacity (TB) 29[29]

Primary author(s) : Dr OHSUGA, Ken (University of Tsukuba)

April 29, 2024

Multidisciplin  $\cdots$  / Report of Contributions Structure Formation in the U  $\cdots$ 

Track Classification: Astrophysics(宇宙分野)

Contribution ID : 23

Type : MCRP-M

## High Resolution Numerical Simulation for Complex terrain using Regional Meteorological Model

Number of project members

16

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i023]

OFP: Requested [awarded] number of nodes 64 [64]

OFP: Requested [awarded] node-hour product 30,000 [30,000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : KUSAKA, Hiroyuki (University of Tsukuba)

April 29, 2024

Multidisciplin ··· / Report of Contributions High Resolution Numerical S ···

#### Track Classification: Global environment(地球環境分野)

Multidisciplin ··· / Report of Contributions

Development and Applicatio …

Contribution ID : 24

Type : MCRP-M

#### Development and Application of Large Eddy Simulation Model Written in the Parallel Computational Code for Urban Areas and Wind Farms

Number of project members

10

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i028

OFP: Requested [awarded] number of nodes 256 [256]

OFP: Requested [awarded] node-hour product 150,000 [112,500]

OFP: Requested [awarded] disk capacity (TB) 400 [400]

Multidisciplin ··· / Report of Contributions Development and Applicatio ···

Primary author(s): SATO, Takuto (Life and environmental sciences, Univ. of Tsukuba)

Track Classification: Global environment(地球環境分野)

Multidisciplin ··· / Report of Contributions

Evaluation of baseball player  $\cdots$ 

Contribution ID : 25

Type : MCRP-S

## Evaluation of baseball players with big data

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i025]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 50,000 [50,000]

OFP: Requested [awarded] disk capacity (TB)
[20]

Primary author(s) : OSAWA, Kiyoshi

Multidisciplin  $\cdots$  / Report of Contributions Evaluation of baseball player  $\cdots$ 

#### Track Classification: Numerical analysis(数值解析分野)

Resting membrane potential…

Contribution ID : 26

Type : MCRP-M

# Resting membrane potential and ion distribution by all-atom molecular dynamics simulations

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i026]

OFP: Requested [awarded] number of nodes 32 [32]

OFP: Requested [awarded] node-hour product 76,800 [57,600]

OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s) : KAWAGUCHI, Kazutomo (Kanazawa University)

Multidisciplin  $\cdots$  / Report of Contributions Resting membrane potential  $\cdots$ 

Track Classification: Life Science(生命分野)

Contribution ID : 27

Type : MCRP-M

## Particle Physics with Tensor Network Scheme

Number of project members

4

Cygnus: Project code TRG

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 50000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i040

OFP: Requested [awarded] number of nodes 256 [256]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

 $\label{eq:primary author} Primary \ author(s): \ \ YOSHIMURA, \ yusuke$ 

Multidisciplin  $\cdots$  / Report of Contributions  $\hfill Particle Physics with Tensor \cdots$ 

Track Classification: Particle Physics(素粒子分野)

Nucleon structure from lattic…

Contribution ID : 28

Type : MCRP-M

# Nucleon structure from lattice QCD at nearly physical quark mass

Number of project members

4

Cygnus: Project code NUCLFF

Cygnus: Requested [awarded] number of nodes 16 [16]

Cygnus: Requested [awarded] node-hour product 100000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) 100 [100]

OFP: Project code xg18i012

OFP: Requested [awarded] number of nodes 1024[1024]

OFP: Requested [awarded] node-hour product 1000000 [225000]

OFP: Requested [awarded] disk capacity (TB) 200 [200]

 $\label{eq:primary author} Primary \ author(s): \ \ SASAKI, \ Shoichi \ (Tohoku \ University)$ 

April 29, 2024

Multidisciplin  $\cdots$  / Report of Contributions Nucleon structure from lattic  $\cdots$ 

#### Track Classification: Nuclear Physics(原子核分野)

Contribution ID : 29

Type : MCRP-M

# Research on Arctic Atmosphere Circulation using atmospheric global circulation models

Number of project members

9

Cygnus: Project code GEO2019 [GEO]

Cygnus: Requested [awarded] number of nodes 1 [1]

Cygnus: Requested [awarded] node-hour product 3000 [3000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i037

OFP: Requested [awarded] number of nodes 640 [640]

OFP: Requested [awarded] node-hour product 128,000 [96,000]

OFP: Requested [awarded] disk capacity (TB) 50 [50]

Primary author(s) : Prof. TANAKA, Hiroshi (University of Tsukuba, CCS)

Multidisciplin  $\cdots$  / Report of Contributions Research on Arctic Atmosph  $\cdots$ 

#### Track Classification: Global environment(地球環境分野)

Multidisciplin ··· / Report of Contributions

Development of a core techn…

Contribution ID : 30

Type : MCRP-M

### Development of a core technologies for multi-modal treatment planning system with the high-speed and high-precision Monte Carlo dose calculation engine

Number of project members

5

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i029

OFP: Requested [awarded] number of nodes 128 [128]

OFP: Requested [awarded] node-hour product 250,000 [187,500]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s): KUMADA, Hiroaki (University of Tsukuba); Dr TAKADA, Kenta (Gunma Prefectureal College of Health Sciences); Dr SATO, Tatsuhiko (Japan Atomic Energy Agency); Dr FURUTA, Takuya (Japan Atomic Energy Agency)

Track Classification: Life Science(生命分野)

High precision gravitational …

Contribution ID : 32

Type : MCRP-L

# High precision gravitational waveforms from black hole-neutron star binary mergers

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg18i042]

OFP: Requested [awarded] number of nodes 128 [128]

OFP: Requested [awarded] node-hour product 1000000 [1000000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s): KIUCHI, Kenta (Yukawa Institute for Theoretical Physics)

Multidisciplin  $\cdots$  / Report of Contributions High precision gravitational  $\cdots$ 

Track Classification: Astrophysics(宇宙分野)

Multidisciplin ··· / Report of Contributions

Calculation of K meson decay …

Contribution ID: 33

Type : MCRP-M

# Calculation of K meson decay amplitude from lattice QCD

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i031

OFP: Requested [awarded] number of nodes 16 [16]

OFP: Requested [awarded] node-hour product 300,000 [225,000]

OFP: Requested [awarded] disk capacity (TB) 150 [150]

Primary author(s): ISHIZUKA, Naruhito (Center for Computational Physics, University of Tsukuba)

Track Classification: Particle Physics(素粒子分野)

Contribution ID: 34

Type : MCRP-M

## Theoretical investigation of molecular mechanisms of electron, proton and energy transfer reactions in proteins

Number of project members 7
Cygnus: Project code PROTEIN
Cygnus: Requested [awarded] number of nodes 16 [16]
Cygnus: Requested [awarded] node-hour product 44000 [26,400]
Cygnus: Requested [awarded] disk capacity (TB) [15]
OFP: Project code xg18i041
OFP: Requested [awarded] number of nodes 64 [64]
OFP: Requested [awarded] node-hour product 300,000 [225,000]
OFP: Requested [awarded] disk capacity (TB)

[20]

Multidisciplin  $\cdots$  / Report of Contributions Theoretical investigation of m  $\cdots$ 

#### Primary author(s) : SAITO, Keisuke (University of Tokyo)

Track Classification: Biology(生物分野)

Calculation of physical quant  $\cdots$ 

Contribution ID: 35

Type : MCRP-M

## Calculation of physical quantities of hadrons near physical quark masses from lattice QCD

Number of project members

4

Cygnus: Project code LATNUC

Cygnus: Requested [awarded] number of nodes 64 [32]

Cygnus: Requested [awarded] node-hour product 100000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) 100 [100]

OFP: Project code xg18i027

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 1000000 [225000]

OFP: Requested [awarded] disk capacity (TB) 180 [180]

Primary author(s) : YAMAZAKI, Takeshi (University of Tsukuba)

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Multidisciplin  $\cdots$  / Report of Contributions Calculation of physical quant  $\cdots$ 

#### Track Classification: Particle Physics(素粒子分野)

Multidisciplin ··· / Report of Contributions

Scalable communication perf…

Contribution ID : 36

Type : MCRP-M

### Scalable communication performance prediction using auto-generated pseudo MPI event trace and CPU-simulator

Number of project members 3

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i036]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 10000 [9500]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Multidisciplin ··· / Report of Contributions Scalable communication perf ···

Primary author(s) : TSUJI, Miwako (RIKEN AICS)

Track Classification: High-performance computing system(超高速計算システム分 野)

Development of next generat…

Contribution ID: 37

Type : MCRP-M

## Development of next generation parallel algorithms and software for solving large-scale eigenvalue problems

Number of project members 10
Cygnus: Project code NGNAS
Cygnus: Requested [awarded] number of nodes 32 [32]
Cygnus: Requested [awarded] node-hour product 5000 [5000]
Cygnus: Requested [awarded] disk capacity (TB) [15]
OFP: Project code xg18i046
OFP: Requested [awarded] number of nodes 2048[2048]
OFP: Requested [awarded] node-hour product 300000 [225000]
OFP: Requested [awarded] disk capacity (TB) [20]

Multidisciplin ··· / Report of Contributions Development of next generat ···

Primary author(s) : SAKURAI, Tetsuya (University of Tsukuba)

Track Classification: Numerical analysis(数值解析分野)

Theoretical elucidation on th…

Contribution ID : 38

Type : MCRP-M

#### Theoretical elucidation on the reaction mechanisms of biomolecules based on the large-scale molecular simulations

Number of project members

12

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i025

OFP: Requested [awarded] number of nodes 256 [256]

OFP: Requested [awarded] node-hour product 100800 [75600]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : SHOJI, Mitsuo (Center for Computational Sciences, University of Tsukuba)

Track Classification: Life Science(生命分野)

General relativistic radiation…

Contribution ID : 39

Type : MCRP-S

#### General relativistic radiation magnetohydrodynamic simulations of supercritical accretion flows solving Boltzmann equation

Number of project members

6

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i039]

OFP: Requested [awarded] number of nodes 32 [32]

OFP: Requested [awarded] node-hour product 50,000 [50,000]

OFP: Requested [awarded] disk capacity (TB) [20]

Multidisciplin ··· / Report of Contributions General relativistic radiation ···

Primary author(s) : ASAHINA, Yuta

Co-author(s) : OHSUGA, Ken (University of Tsukuba)

Track Classification: Astrophysics(宇宙分野)

First-Principles Simulation of …

Contribution ID : 40

Type : MCRP-M

## First-Principles Simulation of Dynamics for Light, Electrons and Atoms in Solids

Number of project members

5

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes 0

Cygnus: Requested [awarded] node-hour product 0

Cygnus: Requested [awarded] disk capacity (TB) 0

OFP: Project code [xg19i040]

OFP: Requested [awarded] number of nodes 512 [512]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : YAMADA, Atsushi (University of Tsukuba)

April 29, 2024
Multidisciplin  $\cdots$  / Report of Contributions First-Principles Simulation of  $\cdots$ 

#### Track Classification: Material Science(物質科学分野)

Contribution ID : 41

Type : MCRP-M

## Study on QCD phase structure

Number of project members

3

Cygnus: Project code DENSEQCD

Cygnus: Requested [awarded] number of nodes 8 [8]

Cygnus: Requested [awarded] node-hour product 50000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) [15]

OFP: Project code xg18i055

OFP: Requested [awarded] number of nodes 8 [8]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s): OHNO, Hiroshi (University of Tsukuba)

Multidisciplin… / Report of Contributions Study on QCD phase structure

#### Track Classification: Particle Physics(素粒子分野)

Study of QCD with finite tem  $\cdots$ 

Contribution ID : 42

Type : MCRP-M

## Study of QCD with finite temperature

Number of project members

3

Cygnus: Project code XQCD

Cygnus: Requested [awarded] number of nodes 8 [8]

Cygnus: Requested [awarded] node-hour product 50,000 [30,000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i005

OFP: Requested [awarded] number of nodes 8 [8]

OFP: Requested [awarded] node-hour product 300,000 [225,000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : NAKAMURA, Yoshifumi (RIKEN)

Multidisciplin  $\cdots$  / Report of Contributions Study of QCD with finite tem  $\cdots$ 

#### Track Classification: Particle Physics(素粒子分野)

Contribution ID: 43

Type : MCRP-S

### Implementation of Lattice QCD common code to large scale parallel supercomputer with manycore and GPU architecture

Number of project members

7

Cygnus: Project code BRIDGE

Cygnus: Requested [awarded] number of nodes 16 [16]

Cygnus: Requested [awarded] node-hour product 1000 [1000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i014

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 16000 [16000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s): NEMURA, Hidekatsu (Research Center for Nuclear Physics, Osaka University)

Track Classification: Particle Physics(素粒子分野)

Contribution ID : 44

Type : MCRP-L

# Thermodynamic observables in (2+1)-flavor QCD applying the gradient-flow method

Number of project members 8

Cygnus: Project code WHOTSPOT [WHOTSPOTC]

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 95480 [95480]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i021

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 999885 [999885]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : TANIGUCHI, Yusuke (University of Tsukuba)

 $\label{eq:multidisciplin} \ensuremath{\mathsf{Multidisciplin}} \cdots \ensuremath{\;/} \ensuremath{\mathsf{Report}} \ensuremath{\mathsf{of}} \ensuremath{\mathsf{Contributions}} \ensuremath{\;} \ensuremath{\mathsf{Thermodynamic observables}} \cdots$ 

#### Track Classification: Particle Physics(素粒子分野)

Multidisciplin ··· / Report of Contributions

Cluster structures near thres…

Contribution ID : 45

Type : MCRP-S

## Cluster structures near threshold energies

Number of project members 3

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i007

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 50000 [50000]

OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s) : Dr TANIGUCHI, Yasutaka (National Institute of Technology, Kagawa College)

Multidisciplin  $\cdots$  / Report of Contributions Cluster structures near thres  $\cdots$ 

#### Track Classification: Nuclear Physics(原子核分野)

Contribution ID: 46

Type : MCRP-FPGA

### Reduced/extended/mixed-precision matrix computations on FPGAs and GPGPUs

Number of project members 5
Cygnus: Project code LSPANC
Cygnus: Requested [awarded] number of nodes 32 [32]
Cygnus: Requested [awarded] node-hour product 1000 [800]
Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code

15 [15]

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : IMAMURA, Toshiyuki (RIKEN Center for Computational Science)

Time-dependent radiative tra…

Contribution ID: 47

Type : MCRP-M

### Time-dependent radiative transfer simulations for in-vivo bioimaging

Number of project members

7

Cygnus: Project code RT810img [RT810IMG]

Cygnus: Requested [awarded] number of nodes 24 [24]

Cygnus: Requested [awarded] node-hour product 30000 [18000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code [xg19i047]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

 $Primary \ author(s): \ YAJIMA, Hidenobu$ 

Multidisciplin ··· / Report of Contributions

Time-dependent radiative tra…

Track Classification: Astrophysics(宇宙分野)

Contribution ID : 48

Type : MCRP-M

## Determination of HVP muon g-2 in lattice QCD

Number of project members

2

Cygnus: Project code Muong2 [MUONG2]

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 70000 [30000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i015

OFP: Requested [awarded] number of nodes 2048 [1024]

OFP: Requested [awarded] node-hour product 1000000 [225000]

OFP: Requested [awarded] disk capacity (TB) 200 [200]

Primary author(s) : SHINTANI, Eigo (RIKEN)

Multidisciplin  $\cdots$  / Report of Contributions Determination of HVP muon  $\cdots$ 

#### Track Classification: Particle Physics(素粒子分野)

Contribution ID : 49

Type : MCRP-S

# Calculation of double-beta decay nuclear matrix elements using QRPA and GCM

Number of project members

1

Cygnus: Project code GCM

Cygnus: Requested [awarded] number of nodes 4 [4]

Cygnus: Requested [awarded] node-hour product 1000 [1000]

Cygnus: Requested [awarded] disk capacity (TB) [15]

OFP: Project code xg18i060

OFP: Requested [awarded] number of nodes 256[256]

OFP: Requested [awarded] node-hour product 25000 [25000]

OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s) : Dr HINOHARA, Nobuo (University of Tsukuba)

Multidisciplin  $\cdots$  / Report of Contributions Calculation of double-beta de  $\cdots$ 

#### Track Classification: Nuclear Physics(原子核分野)

Exploring performance of …

Contribution ID : 50

Type : MCRP-M

# Exploring performance of DFT-MD simulation for interfacial water

Number of project members

2

Cygnus: Project code DFTMDPER [非採択]

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB) 15 [0]

OFP: Project code DFTMDPER [xg19i050]

OFP: Requested [awarded] number of nodes 2048 [1024]

OFP: Requested [awarded] node-hour product 1000000 [210000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : Dr NAGATA, Yuki (Max Planck Institute for Polymer Research)

Co-author(s): Dr OHTO, Tatsuhiko (Graduate School of Engineering Science, Osaka University)

Track Classification: Chemistry(化学分野)

Multidisciplin ··· / Report of Contributions

Performance evaluation of …

Contribution ID : 51

Type : MCRP-FPGA

# Performance evaluation of high-precision floating-point units

Number 8	of project members
Cygnus: 1 HPFP	Project code
Cygnus: 1 32 [32]	Requested [awarded] number of nodes
Cygnus: 1 5000 [50	Requested [awarded] node-hour product )00]
Cygnus: 1 [15]	Requested [awarded] disk capacity (TB)

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : Prof. NAKASATO, Naohito (University of Aizu)

Track Classification: High-performance computing system(超高速計算システム分 野)

Monte Carlo calculation for s…

Contribution ID : 52

Type : MCRP-S

## Monte Carlo calculation for superconducting transition temperature of cuprate superconductors

Number of project members

2

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i052]

OFP: Requested [awarded] number of nodes 64 [64]

OFP: Requested [awarded] node-hour product 30000 [30000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

 $\label{eq:primary author} Primary \ author(s): \ Prof. \ KOIZUMI, \ Hiroyasu \ (University \ of \ Tsukuba)$ 

Multidisciplin  $\cdots$  / Report of Contributions Monte Carlo calculation for s  $\cdots$ 

#### Track Classification: Material Science(物質科学分野)

Phylogenomic study for unde…

Contribution ID : 53

Type : MCRP-S

# Phylogenomic study for understanding the global eukaryotic phylogeny

Number of project members

6

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i053]

OFP: Requested [awarded] number of nodes 64 [64]

OFP: Requested [awarded] node-hour product 1000 [1000]

OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s) : Prof. INAGAKI, Yuji (University of Tsukuba); Dr ISHITANI, Yoshiyuki (University of Tsukuba); Dr YAZAKI, Euki (University of Tokyo); Dr KUME, Keitaro (University of Tsukuba); Prof. HASHIMOTO, Tetsuo (University of Tsukuba)

Track Classification: Biology(生物分野)

Contribution ID : 54

Type : MCRP-FPGA

# Joint research on a network subsystem and its application for FPGA cluster

Number of project members

10

Cygnus: Project code FPGACL

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 5000 [5000]

Cygnus: Requested [awarded] disk capacity (TB) [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : Dr SANO, Kentaro (Riken R-CCS); Dr SATO, Mitsuhisa (Riken R-CCS); Dr UENO, Tomohiro (Riken R-CCS); Dr MIYAJIMA, Takaaki (Riken R-CCS); Dr HUTHMANN, Jens (Riken R-CCS); Dr JINPIL, Lee (Riken R-CCS); Prof. BOKU, Taisuke (University of Tsukuba); Prof. KOBAYASHI, Ryohei (University of Tsukuba); Dr FUJITA, Norihisa (University of Tsukuba); Mr WATANABE, Yutaka (University of Tsukuba)

Track Classification: High-performance computing system(超高速計算システム分 野)

Non-perturbative renormaliz...

Contribution ID : 55

Type : MCRP-M

## Non-perturbative renormalization of nucleon tensor and scalar couplings in lattice QCD

Number of project members 3 Cygnus: Project code NNPR Cygnus: Requested [awarded] number of nodes 32 [32] Cygnus: Requested [awarded] node-hour product 50000 [30000] Cygnus: Requested [awarded] disk capacity (TB) 100 [100] OFP: Project code [xg19i055] OFP: Requested [awarded] number of nodes 1024 [1024] OFP: Requested [awarded] node-hour product 300000[225000] OFP: Requested [awarded] disk capacity (TB) 100 [100]

Primary author(s) : TSUKAMOTO, Natsuki (Tohoku University)

 $\label{eq:multidisciplin} \ensuremath{\mathsf{Multidisciplin}} \cdots \ensuremath{\;/} \ensuremath{\mathsf{Report}} \ensuremath{\mathsf{of}} \ensuremath{\mathsf{Contributions}} \ensuremath{\;} \ensuremath{\mathsf{Non-perturbative renormaliz}} \cdots$ 

#### Track Classification: Nuclear Physics(原子核分野)

Formation and evolution of l  $\cdots$ 

Contribution ID : 56

Type : MCRP-M

## Formation and evolution of local galaxies

Number of project members 8

Cygnus: Project code GALAXY

Cygnus: Requested [awarded] number of nodes 32[32]

Cygnus: Requested [awarded] node-hour product 18500[11100]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i032

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 70000 [52500]

OFP: Requested [awarded] disk capacity (TB) 150 [150]

Primary author(s): MORI, Masao (University of Tsukuba)

Multidisciplin  $\cdots$  / Report of Contributions Formation and evolution of l  $\cdots$ 

Track Classification: Astrophysics(宇宙分野)

Automatic planning of radiati…

Contribution ID : 57

Type : MCRP-S

# Automatic planning of radiation therapy for breast cancer using deep learning

Number of project members

2

Cygnus: Project code JuntenMP [JUNTENMP]

Cygnus: Requested [awarded] number of nodes 8 [8]

Cygnus: Requested [awarded] node-hour product 5000 [5000]

Cygnus: Requested [awarded] disk capacity (TB) [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : OYA, Megumi (Juntendo University)

Multidisciplin ···· / Report of Contributions Automatic planning of radiati ···

Track Classification: Life Science(生命分野)

Contribution ID : 58

Type : MCRP-M

### Dynamical Effect of Cosmic Relic Neutrinos on the Large Scale Structure Formation in the Universe

Number of project members 2

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i019

OFP: Requested [awarded] number of nodes 512 [512]

OFP: Requested [awarded] node-hour product 112000 [84000]

OFP: Requested [awarded] disk capacity (TB) 40 [40]
Primary author(s) : YOSHIKAWA, Kohji (Center for Computational Sciences, University of Tsukuba)

Track Classification: Astrophysics(宇宙分野)

Car-Parrinello molecular dyn…

Contribution ID : 59

Type : MCRP-M

# Car-Parrinello molecular dynamics simulations for nano- and bio-systems

Number of project members

6

Cygnus: Project code CPMDC

Cygnus: Requested [awarded] number of nodes 24[24]

Cygnus: Requested [awarded] node-hour product 10240 [6144]

Cygnus: Requested [awarded] disk capacity (TB) 5TV [5]

OFP: Project code xg18i038

OFP: Requested [awarded] number of nodes 256 [256]

OFP: Requested [awarded] node-hour product 64000 [50000]

OFP: Requested [awarded] disk capacity (TB) 10T [10] Primary author(s): SHIGETA, Yasuteru (Center for Computational Sciences, University of Tsukuba)

Track Classification: Chemistry(化学分野)

Cosmological simulations of  $\cdots$ 

Contribution ID : 60

Type : MCRP-M

#### Cosmological simulations of co-evolving galaxies and their central supermassive black holes

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i051

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 500000 [225000]

OFP: Requested [awarded] disk capacity (TB) 200 [200]

Primary author(s): OKAMOTO, Takashi (Hokkaido University)

April 29, 2024

Multidisciplin  $\cdots$  / Report of Contributions Cosmological simulations of  $\cdots$ 

Track Classification: Astrophysics(宇宙分野)

Effect of Recombination Radi…

Contribution ID : 61

Type : MCRP-M

# Effect of Recombination Radiation in the Epoch of Reionization

Number of project members 2
Cygnus: Project code ARGOT
Cygnus: Requested [awarded] number of nodes 32 [32]
Cygnus: Requested [awarded] node-hour product 25000 [15000]
Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : TANAKA, Satoshi (University of Tsukuba)

Multidisciplin ···· / Report of Contributions Effect of Recombination Radi ····

Track Classification: Astrophysics(宇宙分野)

Multidisciplin ··· / Report of Contributions

First-principles electron- …

Contribution ID : 62

Type : MCRP-M

#### First-principles electron-dynamics calculation for the interaction between the metasurface and extreme laser pulse

Number of project members 13

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i062]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300,000 [225,000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Multidisciplin ··· / Report of Contributions First-principles electron- ···

Primary author(s) : UEMOTO, Mitsuharu (University of Tsukuba)

Track Classification: Material Science(物質科学分野)

Clarification of the relationsh…

Contribution ID : 63

Type : MCRP-M

## Clarification of the relationship between SiC/SiO2 interface structures and electronic properties

Number of project members

5

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i063]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s) : MATSUSHITA, Yu-ichiro (Tokyo Institute of Technology)

Multidisciplin  $\cdots$  / Report of Contributions Clarification of the relationsh  $\cdots$ 

#### Track Classification: Material Science(物質科学分野)

Multidisciplin ··· / Report of Contributions

Photoexcited Electron Dyna…

Contribution ID : 64

Type : MCRP-M

## Photoexcited Electron Dynamics in Nanostructures

Number of project members 3

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i036

OFP: Requested [awarded] number of nodes 512 [512]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) [20]

Primary author(s): NODA, Masashi (University of Tsukuba)

Multidisciplin  $\cdots$  / Report of Contributions Photoexcited Electron Dyna  $\cdots$ 

#### Track Classification: Material Science(物質科学分野)

Time-Dependent Density Fun …

Contribution ID : 65

Type : MCRP-S

### Time-Dependent Density Functional Study of Heavy-Ion Reactions

Number of project members

4

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code NUCLHIC [xg19i065]

OFP: Requested [awarded] number of nodes 5 [5]

OFP: Requested [awarded] node-hour product 10,000 [10,000]

OFP: Requested [awarded] disk capacity (TB) 5 [5]

Primary author(s): Dr SEKIZAWA, Kazuyuki (Institute for Research Promotion, Niigata University)

Track Classification: Nuclear Physics(原子核分野)

Topological excitation in high …

Contribution ID : 66

Type : MCRP-M

### Topological excitation in high temperature phase of Quantum Chromodynamics

Number of project members

6

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i023

OFP: Requested [awarded] number of nodes 27 [27]

OFP: Requested [awarded] node-hour product 457,000 [225,000]

OFP: Requested [awarded] disk capacity (TB) 20T [20]

Primary author(s) : FUKAYA, Hidenori

April 29, 2024

Multidisciplin ··· / Report of Contributions

Topological excitation in high …

#### Track Classification: Particle Physics(素粒子分野)

Multidisciplin ··· / Report of Contributions

Simulation of axion dark mat…

Contribution ID : 67

Type : MCRP-M

## Simulation of axion dark matter production and its evolution

Number of project members

4

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i065

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : SEKIGUCHI, Toyokazu (Research Center for the Early Universe, University of Tokyo)

Track Classification: Astrophysics(宇宙分野)

First-principles and quantum...

Contribution ID : 68

Type : MCRP-M

#### First-principles and quantum many-body calculations for electronic states and superconductivity in the multi-band systems

Number of project members

10

Cygnus: Project code 希望未記入

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 10000 [6000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i068

OFP: Requested [awarded] number of nodes 256 [256]

OFP: Requested [awarded] node-hour product 100000 [75000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Multidisciplin ··· / Report of Contributions First-principles and quantum ···

Primary author(s) : ONO, Yoshiaki (Niigata University)

Track Classification: Material Science(物質科学分野)

Study of heterogeneous com…

Contribution ID : 69

Type : MCRP-FPGA

# Study of heterogeneous computing using FPGA, CPU and GPU

Number of project members

4

Cygnus: Project code ABCLOUD

Cygnus: Requested [awarded] number of nodes 4 [4]

Cygnus: Requested [awarded] node-hour product 2000 [2000]

Cygnus: Requested [awarded] disk capacity (TB) [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s): KUDOH, Tomohiro (The University of Tokyo)

Track Classification: High-performance computing system(超高速計算システム分野)

Theory of organic devices by …

Contribution ID : 70

Type : MCRP-S

# Theory of organic devices by large-scale first-principles charge transport calculations

Number of project members 10 Cygnus: Project code 希望未記入 Cygnus: Requested [awarded] number of nodes 16 [16] Cygnus: Requested [awarded] node-hour product 1000 [1000] Cygnus: Requested [awarded] disk capacity (TB) 15 [15] OFP: Project code xg18i0xg [xg19i070] OFP: Requested [awarded] number of nodes 1024 [1024] OFP: Requested [awarded] node-hour product 20000 [20000] OFP: Requested [awarded] disk capacity (TB) 20 [20] Primary author(s) : KOBAYASHI, Nobuhiko (Univ Tsukuba) Multidisciplin  $\cdots$  / Report of Contributions Theory of organic devices by  $\cdots$ 

#### Track Classification: Material Science(物質科学分野)

Developing the detection me…

Contribution ID: 71

Type : MCRP-S

### Developing the detection method of Circumplanetary Disks by Deep Learning

Number of project members 4 Cygnus: Project code **ASTROBIO** Cygnus: Requested [awarded] number of nodes 16 [16] Cygnus: Requested [awarded] node-hour product 5,000 [5,000] Cygnus: Requested [awarded] disk capacity (TB) 15 [15] OFP: Project code [xg19i071] OFP: Requested [awarded] number of nodes 1024 [1024] OFP: Requested [awarded] node-hour product 50,000 [50,000] OFP: Requested [awarded] disk capacity (TB) 20 [20]

 $\label{eq:primary author} Primary \ author(s): \ \ Dr \ KOMATSU, \ Yu \ (NINS-Astrobiology \ Center)$ 

Multidisciplin  $\cdots$  / Report of Contributions  $$\ensuremath{\mathsf{Developing}}$  the detection me  $\cdots$ 

Track Classification: Astrophysics(宇宙分野)

Contribution ID: 72

Type : MCRP-S

### Elucidation of the structure-function relationship of biomacromolecules by the molecular dynamics simulation

Number of project members 3
Cygnus: Project code KITMD
Cygnus: Requested [awarded] number of nodes 4 [4]
Cygnus: Requested [awarded] node-hour product 2520 [2520]
Cygnus: Requested [awarded] disk capacity (TB) 15 [15]
OFP: Project code [xg19i072]
OFP: Requested [awarded] number of nodes 4 [4]
OFP: Requested [awarded] node-hour product 22400 [22400]
OFP: Requested [awarded] disk capacity (TB) 20 [20]

Multidisciplin  $\cdots$  / Report of Contributions Elucidation of the structure-  $\cdots$ 

Primary author(s) : KONDO, Hiroko

Track Classification: Chemistry(化学分野)

Novel Method to Study PPI P…

Contribution ID: 73

Type : MCRP-M

### Novel Method to Study PPI Processes by Multi-Scale MD and Rigid-Docking

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i073]

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 26700 [26700]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s) : SHIMOYAMA, Hiromitsu (Kitasato University)

April 29, 2024

Multidisciplin  $\cdots$  / Report of Contributions Novel Method to Study PPI P  $\cdots$ 

Track Classification: Life Science(生命分野)

Contribution ID: 74

Type : MCRP-M

## First-principles Lattice QCD calculation of Hadron interactions

Number of project members
17
Cygnus: Project code
HALQCD

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 9,000 [5,400]

Cygnus: Requested [awarded] disk capacity (TB) 110 [110]

- OFP: Project code [xg19i074]
- OFP: Requested [awarded] number of nodes 2048 [2048]
- OFP: Requested [awarded] node-hour product 102,000 [76,500]

OFP: Requested [awarded] disk capacity (TB)
[20]

Primary author(s) : DOI, Takumi (RIKEN)

Multidisciplin  $\cdots$  / Report of Contributions First-principles Lattice QCD c  $\cdots$ 

#### Track Classification: Nuclear Physics(原子核分野)

Contribution ID: 75

Type : MCRP-M

# Study on molecular activites of GPCR proteins by allostey

#### Number of project members

1

Cygnus: Project code VSOP

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 50000 [20000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : Dr YONEZAWA, Yasushige

April 29, 2024

Multidisciplin ··· / Report of Contributions

Study on molecular activites …

Track Classification: Biology(生物分野)

Investigation of high-spin sta…

Contribution ID: 76

Type : MCRP-M

# Investigation of high-spin states of A~130 nuclei by nuclear shell-model calculations

Number of project members

4

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code xg18i035

OFP: Requested [awarded] number of nodes 1024 [1024]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) 30 [30]
Primary author(s) : SHIMIZU, Noritaka (Center for Nuclear Study, the University of Tokyo)

Track Classification: Nuclear Physics(原子核分野)

Contribution ID: 77

Type : MCRP-L

## Development of large scale multiscale simulation platform combining first-principles and tight-binding methods and its applications

Number of project members

11

Cygnus: Project code RSPACE

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 1000 [1000]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code xg18i053

OFP: Requested [awarded] number of nodes 2048 [2048]

OFP: Requested [awarded] node-hour product 1000000 [1000000]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Multidisciplin  $\cdots$  / Report of Contributions Development of large scale m  $\cdots$ 

Primary author(s) : ONO, Tomoya

Track Classification: Material Science(物質科学分野)

Contribution ID: 78

Type : MCRP-M

# Study of confinement mechanism based on the dual superconductivity

#### Number of project members

4

Cygnus: Project code QCNFINE [QCONFINE]

Cygnus: Requested [awarded] number of nodes 16 [16]

Cygnus: Requested [awarded] node-hour product 35,000 [17,500]

Cygnus: Requested [awarded] disk capacity (TB) 15 [15]

OFP: Project code QCONFINE [xg19i078]

OFP: Requested [awarded] number of nodes 64 [64]

OFP: Requested [awarded] node-hour product 299,000 [209,300]

OFP: Requested [awarded] disk capacity (TB) 20 [20]

Primary author(s): SHIBATA, Akihiro (KEK); KATO, Seikou (Oyama college of Technology); KONDO, Kei-Ichi (Chiba Univ.); NISHINO, Shogo (Chiba Univ)

Track Classification: Particle Physics(素粒子分野)

Multidisciplin ··· / Report of Contributions

Nuclear shapes and collectiv…

Contribution ID: 79

Type : MCRP-M

# Nuclear shapes and collective motions in the region of Sm, Hg

Number of project members

1

Cygnus: Project code

Cygnus: Requested [awarded] number of nodes

Cygnus: Requested [awarded] node-hour product

Cygnus: Requested [awarded] disk capacity (TB)

OFP: Project code [xg19i079]

OFP: Requested [awarded] number of nodes 200 [200]

OFP: Requested [awarded] node-hour product 300000 [225000]

OFP: Requested [awarded] disk capacity (TB) [20]

 $\label{eq:primary author} Primary \ author(s): \quad \mbox{TSUNODA, Yusuke (Center for Nuclear Study, the University of}$ Tokyo)

Track Classification: Nuclear Physics(原子核分野)

Contribution ID : 80

Type : MCRP-FPGA

### Development of Computing Platform based on Transprecision and Inter-GPU Streaming Mechanism for HPC

8

Cygnus: Project code CSPP

Cygnus: Requested [awarded] number of nodes 32 [32]

Cygnus: Requested [awarded] node-hour product 5000 [5000]

Cygnus: Requested [awarded] disk capacity (TB) [15]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : HANAWA, Toshihiro (The University of Tokyo)

Track Classification: High-performance computing system(超高速計算システム分 野)

Contribution ID : 81

Type : MCRP-S

## Development of Automated Sleep Stage Scoring Method using Deep Neural Networks

Number of project members

4

Cygnus: Project code SLEEP

Cygnus: Requested [awarded] number of nodes 4 [4]

Cygnus: Requested [awarded] node-hour product 4800 [3840]

Cygnus: Requested [awarded] disk capacity (TB) 3 [3]

OFP: Project code

OFP: Requested [awarded] number of nodes

OFP: Requested [awarded] node-hour product

OFP: Requested [awarded] disk capacity (TB)

Primary author(s) : HORIE, Kazumasa (University of Tsukuba)

April 29, 2024

 $\label{eq:multidisciplin} \ensuremath{\mathsf{Multidisciplin}} \cdots \ensuremath{\;} / \ensuremath{\mathsf{Report}} \ensuremath{\mathsf{of}} \ensuremath{\mathsf{Contributions}} \ensuremath{\;} \\ \ensuremath{\mathsf{Development}} \ensuremath{\mathsf{of}} \ensuremath{\mathsf{Automated}} \ensuremath{\mathsf{S}} \ensuremath{\;} \\ \ensuremath{\mathsf{Contributions}} \ensuremath{\;} \\ \ensuremath{\mathsf{Development}} \ensuremath{\;} \\ \ensuremath{\mathsf{Contributions}} \ensuremath{\;} \\ \ensuremath{\mathsf{Multidisciplin}} \ensuremath{\;} \\ \en$ 

#### Track Classification: Numerical analysis(数值解析分野)