OSAKA NODE

Shinya KANEMURA

Osaka Univ. (since April 2017)

Scalars 2017, 4 December 2017, Warsaw


Shinya KANEMURA
Tokyo
OSAKA
TOYAMA
OSAKA NODE
Since April 2017
RISE MEETING, 4. December 2017, Warsaw

OSAKA

The second biggest city area in Japan

- Osaka Prefecture: population ~9 million
- Kansai Area

Osaka, Kyoto, Kobe, Nara,

~22 million

Osaka was called the capital of business and industry

It has a long history

more than1600 years

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There are different kinds of nice foods

OSAKA

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Osaka University

One of the top research universities in Japan

- **11 Faculties**
- **16 Graduate Schools**
- **21 Research institutes**
- **4 Libraries**
- **2 Univ. Hospitals**

History

Founded in 1724 (Kaitokudo)
in 1838 (Tekijuku)

Chartered on November 22, 1919
as **Osaka Prefectural Medical Univ.**

Re-established on May 1, 1931
as **Osaka Imperial University**

After WWII, it became **Osaka University**

Academic staff	2,953 (academic)
Administrative staff	8,675 (total)
Students	25,248
Undergraduates	15,937
Postgraduates	7,856

School of Science

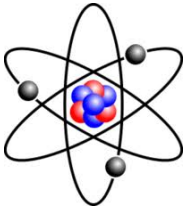
Old Campus (Down Town Osaka)
School of Science
Osaka Imperial University
before WW II

New Campus (Toyonaka City)
School of Science
Osaka University

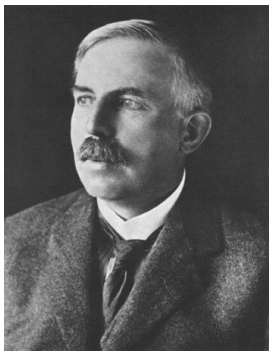
Physicists in Osaka Imperial University before WW II

Prof. H. Nagaoka

1st President of
Osaka Imperial University
(present Osaka Univ.)



Model of Atom

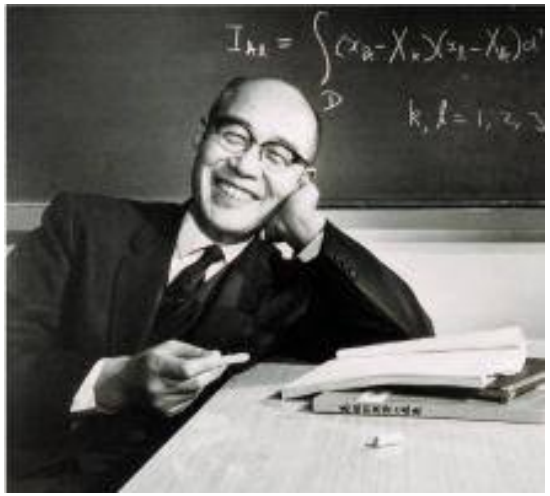


Rutherford

Hideki Yukawa

Meson Theory

Later
professor
in Kyoto U.



Schoichi Sakata

Sakata Model
MNS matrix

Later
professor
in Nagoya U.

Faculties of Physics Department in Osaka Imperial University in 1930s

Greatest HEP theorists in Osaka Univ.

Prof. H. Yukawa (Kyoto)

Ph. D in Osaka Univ.

Theory of Meson
1935

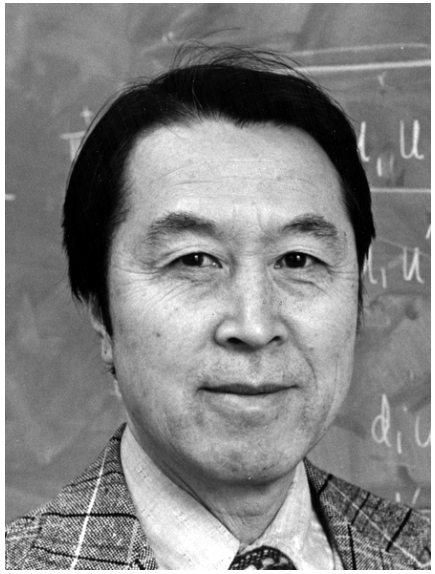
Nobel Prize in Physics
1949

Prof. R. Utiyama (Osaka)

Ph. D in Osaka Univ.

General gauge theories 1954
Gauge Principle for Gravity

Prof. Y. Nambu (Chicago)



Ph. D in Univ. of Tokyo
Professor in U. of Chicago
Honorary Prof. in Osaka Univ.

SSB 1960, Nambu-Goto String, . . .

Nobel Prize in Physics
2008

After WW II

Current HET G

HET Group in School of Science

Prof. Ryoyu Utiyama

Gauge Theory

Prof. Keiji Kikkawa

Quark/String Theory

Prof. Yutaka Hosotani

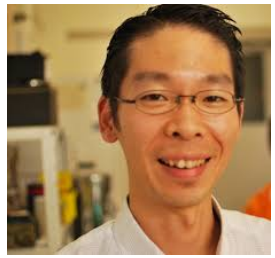
Phenomenology

S. K.

Phenomenology

Prof. Tetsuya Onogi

Lattice



Prof. Koji Hashimoto

String Theory

HET Groups in School of Liberal Arts

Prof. T. Kotani

Phenomenology

Prof. E. Takasugi

Phenomenology

Prof. K. Yamamoto

String Theory

Prof. K. Higashijima

Field Theory

High Energy Theory G in 2017

- **Phenomenology Group**
  - S. Kanemura, K. Oda, K. Mawatari
  - 1 PD, 4 PhD students, 4 master students
- **Lattice Group**
  - T. Onogi, H. Fukaya, M. Tanaka, …
- **String Group**
  - K. Hashimoto, S. Yamaguchi, N. Iizuka, …

In total 9 faculties, 3 PDs and 25 graduate students, …

Main Research Field of each faculty in Pheno G.

Shinya Kanemura:

Higgs Physics, Neutrinos, Dark Matter, Baryogenesis, Collider, Gravitational Waves

NHWG Chair, LCC Member, KAGRA Member

Kin-ya Oda:

Extra Dimension, Higgs Inflation, LHC Phenomenology

K. Mawatari:

Collider Physics, Dark Matter, Higgs, . . .

From Toyama to Osaka

- Our group intends to be one of the most active groups in Japan in particle phenomenology, especially on Higgs and BSM models and test at LHC, LC and GW exps.

- SK organizes New Higgs Working Group since 2012, which is composed of many domestic Higgs and TeV-model researchers in Japan (and Eastern Asia), holding regular meetings in Univ. of Toyama for every three months since 2012. NHWG is continued in Osaka.

- HPNP conferences were held in 2013, 2015 and 2017 in Toyama. SK is planning to hold HPNP2019 in OSAKA

20th Regular Meeting of NHWG

August 18-19, Nambu-Memorial Hall in Osaka University

Current and Future Research activity

Physics of the Higgs sector

Study of theoretical properties of extended Higgs sectors ***in CPV cases***

Physics of EW phase transition ***structure of EW vacuum in extended Higgs models***

Phenomenology of Higgs sectors at LHC, LC and future GW interferometers
For current experiments and also for *Golden 2030s*

Development of the 1-loop corrected Higgs observables in extended Higgs models
H-COUP Project

Models for baryogenesis, neutrino masses, dark matter, inflation

New models to explain these phenomena (esp ***EW baryogenesis***)

Phenomenology of these models for future tests

I hope your visits to OSAKA in the near future

You are all very welcome!