华中师范大学
粒子物理研究所
夸克轻子物理教育部重点实验室

An introduction

Institute of Particle Physics
Key Laboratory of Quark & Lepton Physics (MOE)

Xin-Nian Wang
王新年

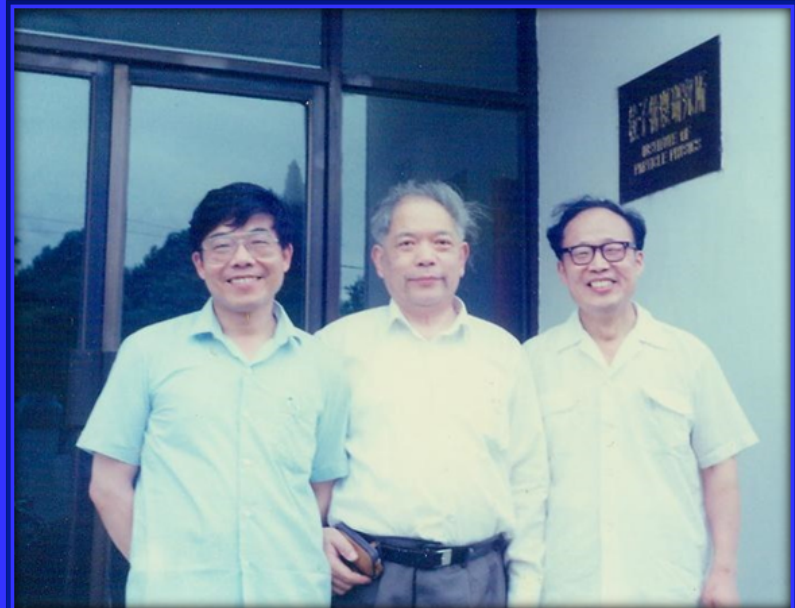# Institute of Particle Physics(IOPP)

Established in 1987
Directors: L.S. Liu (1987-2003);
C. Xu (2003-2012); X. N. Wang
(2012 –present)
Focused on Heavy-ion Physics
- Experiment
- Phenomenology
- Theory

Xu Cai, Liangshou Liu, Jiarong Li
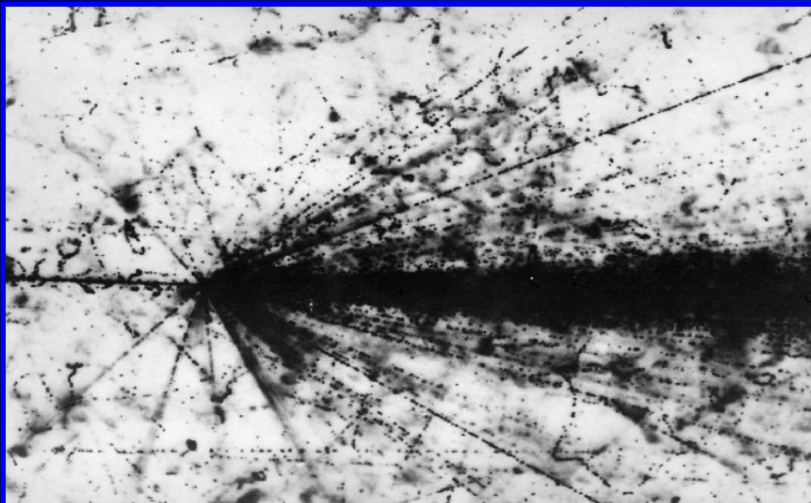蔡 勋　　　刘连寿　　　李家荣

Early experiments involved:

BNL/E815-E863、CERN/EMU01-EMU12，
CERN/SPS/NA22、CERN/SPS/NA49

Joined ALICE@LHC in 1993 , STAR@RHIC in 1999

Key Lab on Quark & Lepton Physics

Approved by Ministry of Education of China and established in 2007

Directors: Enke Wang (2007 -2011), Nu Xu (2011 – present)

International Center for quark matter and detector technology

夸克物质及探测技术国际合作中心

Approved by Ministry of Science and Technology of China in 2016
Co-directors: Enke Wang and Xin-Nian Wang

A framework for international collaboration

- Annual programs on high-energy nuclear physics
- Long and short term visitors
- Joint postdoc positions with partner institutions

IOPP/Key MOE Lab

28 Professors
12 Associate Professors
10 Visiting Professors
17 Postdocs

State research funding (2010-2017): RMB 75M

25 Ph.D students
36 Master students

Theory

Hadron structure, heavy ion theory, LQCD, heavy flavor physics, nuclear structure, nuclear astrophysics
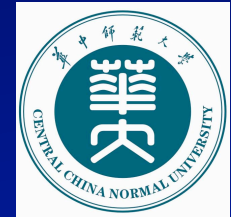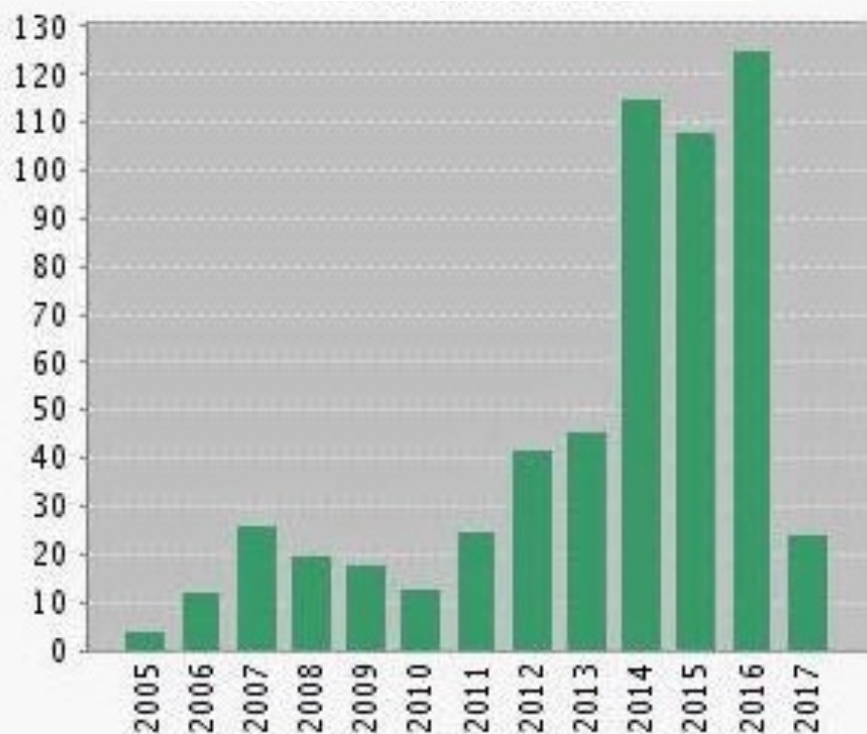
Quark Matter

Experiment

STAR/RHIC, ALICE/LHC, LHCb/LHC

Phenomenology

Fluctuation & correlation, heavy flavor, complex systems

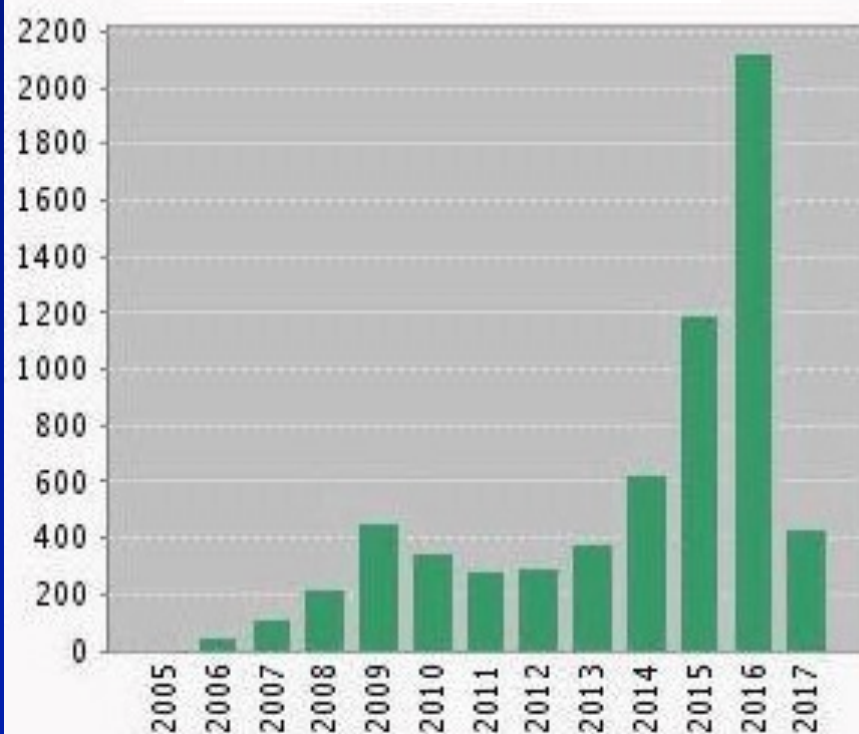# Statistics on publications by IOPP

（from Web of Science 2017）

Experimental Efforts

- ## FAIR/CBM
  - Search for CEP

- ## RHIC/STAR
  - Collective flow, Search for CEP
  - Heavy Flavor physics/HFT

- ## LHC/ALICE
  - **FEE of PHOS and D-Cal, ITS(ALICE upgrade)**
  - **Heavy flavor suppresion, high pt hadrons**
  - **Strangeness production**

- ## LHC/LCHb
  - **Search for physics beyond standard model**
  - **Discovery of doubly charmed baryons**
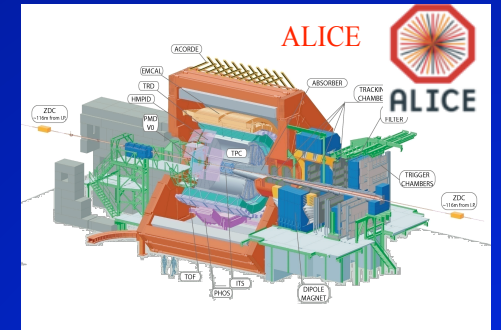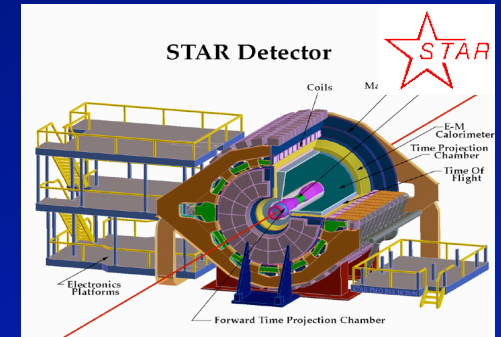
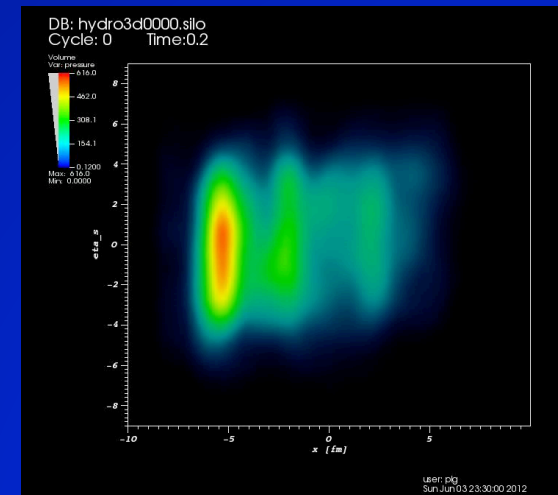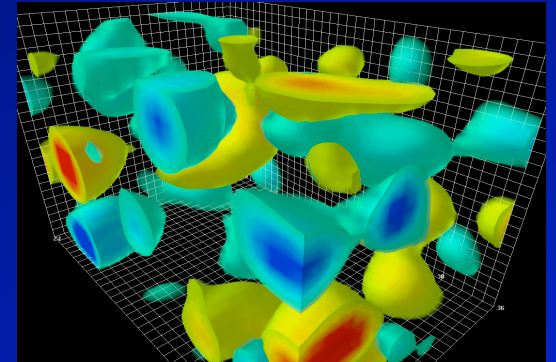# Pixel Laboratory at CCNU

Nuclear Theory

- **Heavy-ion physics:**
  - Hydrodynamics
  - Jet physics
- **Quark matter physics**
  - Finite-T QCD
  - Lattice QCD
- **Hadron structure:**
  - Small-x physics
- **Nuclear structure**
- **Nuclear astrophysics**
- **B-Physics**
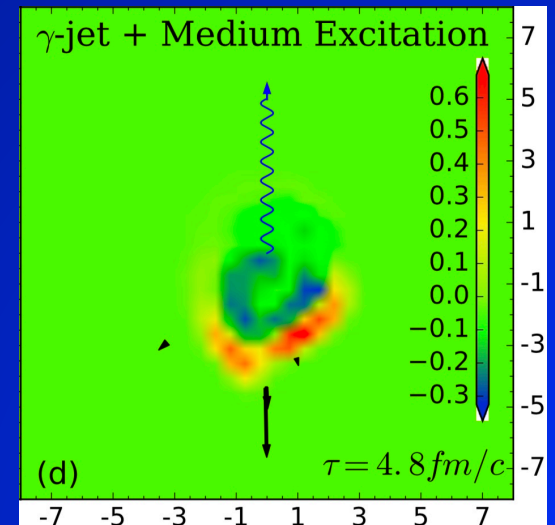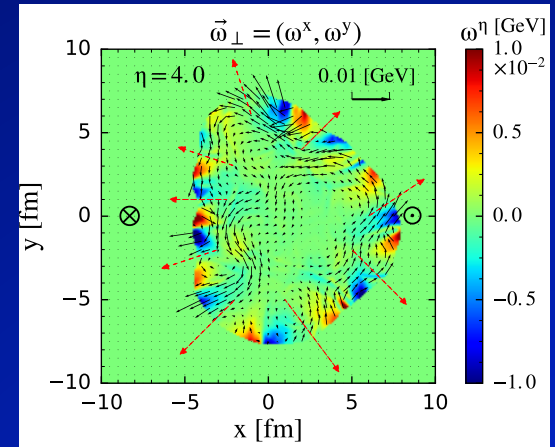
- Lattice QCD
- Heavy-ion collision simulations
- Machine learning
- Data analyses
- Detector simulations

Welcome to CCNU and NSC³