MOS-AK 2023 Nanjing
Introduction to Nanjing

Nanjing, the capital of Jiangsu Province, one of the four ancient capitals in China

"Ancient capital of Six Dynasties"

"Capital of ten generations"
Introduction to Nanjing

Values culture and education,
"the world's cultural hub"
"the first school in the Southeast"
68 colleges and universities
Introduction to Nanjing

钟山风景名胜区
Zhongshan Scenic Area

秦淮风光带景区
Qinhuai Scenic Area
Introduction to Nanjing

春游“牛首烟岚”  
Spring outing "misty haze at the head of cattle"

夏赏“钟阜晴云”  
Summer view "Clear clouds in Zhongfu"

秋登“栖霞圣境”  
Autumn outing "Qixia Holy Land"

冬观“石城霁雪”  
Winter view "stone city after snow"
Introduction to Nanjing

Weaving skills of Nanjing Yunjin

Jinling carved Scripture, Nanjing scissor-cut
Introduction to Nanjing

板鸭 Pressed Salted Duck

盐水鸭 Water Boiled Salted Duck

秦淮八绝 Qinhuai eight signature dish
Introduction to NJUPT

NJUPT was established in 1942. National World First-class Discipline University, High Level University of Jiangsu Province Double first-class university developed jointly by Ministry of Education and Jiangsu Province.
Introduction to NJUPT

NJUPT has a well-structured faculty of over 2800 people, more than 30000 students of all kinds.
Introduction to NJUPT

南邮精神 (spirit)
信达天下 自强不息
Reaching out to the world while striving persistently for perfection

南邮校训 (motto)
厚德、弘毅、求是、笃行
morality  persistence  practicality  sincerity

南邮校风 (ethos)
勤奋、求实、进取、创新
diligence  practicality  progression  innovation

MOS-AK 2023, Nanjing
Introduction to NJUPT

Mr. Zhao Houlin, grade 72 alumnus, Secretary General of ITU

Over 200000 alumni
Introduction to NJUPT

- Integrated circuit and micro assembly
- Organic electronics and information display
- Cyberspace Security
- Optical communication
- Intelligent manufacturing
- Modern post

- Mobile communication
- Internet of things
- Mobile Internet
- Smart grid
- Big data
- Cloud computing
- Demography

- Information materials
- Information devices
- Information systems
- Information networks
- Information applications
Introduction to NJUPT

National Firsts

- First single channel carrier
- First "telephone Secretary"
- First quartz crystal carrier oscillator
- First vertical and horizontal local telephone exchange
- First video telephone system
- First overhead local telephone load box
- First four-channel UHF
- First full relay automatic switch
- First single sideband transceiver
- First conference television system
- First架空式市话负荷箱
Introduction to ICSE

- 国家首批集成电路科学与工程一级学科博士学位点（全国18所高校之一，仅有的两所省属高校之一）
The first group (1/18) of the first level discipline doctoral degree program of the Integrated Circuit Science and Engineering. One of the two Provincial Universities

- 微电子科学与工程专业（Microelectronics Science and engineering）
  - 全国排名第三，全国省属院校第一
    No.3 in China, No.1 in provincial universities
  - 江苏省唯一的本科国家一流专业
    The only undergraduate national first-class specialty in Jiangsu Province
  - 江苏省唯一的教育部工程教育认证专业
    The only engineering education certification specialty of the Ministry of education in Jiangsu Province
Introduction to ICSE

Over 40 national awards, more than 180 provincial awards in various disciplines
Introduction to ICSE

Communication integrated circuits and advanced package testing

- **5G-IOT RF front-end module chip**: high linearity, low power consumption, small size; Compatible with mainstream IOT RF FEM products.

- **Dual band WiFi transceiver chip**: dual band (2.4/5 GHz), 802.11 b/g/n/ac; bandwidth of 20/40/80 MHz; Dual channel transceiver; Receive 35mA (6 dB NF), transmit 16 dBm, 130mA (3.3V, EVM < -5 dB).
Introduction to ICSE

Wide band gap semiconductors and power integration

- **New power device and integration technology:** the 2.2kv power device on organic semiconductor materials has been successfully developed for the first time, cover artical of IEEE EDL.

- **Wide band gap semiconductor materials and device technology:** thin film and nanopillar arrays α/β- Ga2O3 phase junction. selected into ESI highly cited papers.

- **Data driven power device design methodology:** the first time to introduce machine learning into the structure design and performance optimization of power devices. Recommended paper by the editor in chief of IEEE EDL.
Introduction to ICSE

Micro-nano electronic devices and micro-nano systems

- **Organic field effect transistors**: For the first time, the physical definition, corresponding extraction methods and limiting conditions of various mobility are expounded from the perspective of device physics. Cover artical of Advanced Functional Materials.

- Two-dimensional device: first proved that the dielectric layer of the 2D logic device integrated by van der Waals has better reliability. Published on IEEE IEDM.
Introduction to NUAA

- Established in 1952
- National Key University in 1978
- ‘211 Project’ in 1996
- National Key Construction University of ‘985 Project’ Advantageous Discipline Innovation Platform in 2011
- Double ‘First-Class’ University in 2017
- Developed jointly by Ministry of Industry and Information, Ministry of Education, and Jiangsu Province
Introduction to NUAA

- Participate in the pre-research, technical research, and experimental work of **almost all important aviation and airspace models** in China.
- Provide key technical solution in the fields of **aviation manufacturing, aviation power**, and aerospace technology.
Introduction to NUAA

1. Minggugong Campus
2. Jiangjunlu Campus
3. Tianmuhu Campus
4. Jiangbei International Campus

MOS-AK 2023, Nanjing
Introduction to NUAA

**Minggugong Campus**

**Jiangjunlu Campus**
Introduction to CEIC/CIC

College of Electronic and Information Engineering/College of Integrated Circuits
- Established in 1959
- 3 Departments, 3 Undergraduate Majors
- 6 Provincial and Ministerial Key Laboratories

Class of 83
Zhang Kunhui
President of China Avionics Systems Co., Ltd.

Class of 92
Sun Zezhou
Chief Designer of Chang’e 3 & 4
Introduction to CEIC/CIC

Prof. Ben De
Radar System and Chip

Prof. Pan Shilong
Microwave Photonic IC

Prof. Liu Weiqiang
ASIC Design

Prof. Wang Chenghua
ASIC Design

Prof. Zhu Daiyin
DSP Chip and System

Prof. Chen Gang
EDA Software Engineering

Prof. Wu Ning
Digital IC Design

Prof. Bu Gang
Mix Signal IC Design

Prof. Li Ang
Silicon based Photonic IC

Prof. Shi Yongrong
RF Front-end IC

Prof. Li Xing
Power IC Design

Prof. He Jijun
Photonic IC Technology

MOS-AK 2023, Nanjing
Introduction to CEIC/CIC

Digital IC
- Approximate Computing
- NOC Processor
- Accelerator for ML/AI
- Hardware Security
- VLSI Design & Test

Analog & Mix Signal IC
- High Performance ADC/DAC
- High-speed Data Interface
- Thz RF Front-end Chip
- High Efficiency Power Conversion
- Power Management Chip

Emerging Device
- Non-volatile Memory Design
- In-memory/Neuromorphic Computing
- Photonic IC
- Borophene based IC

Design Automation
- Hardware Formal Verification
- EDA Tools for Placement & Routing
- Functional Hardware Languages
- Micro Processor Generator

MOS-AK 2023, Nanjing
Introduction to CEIC/CIC

◆ Approximate Computing Circuit & Chip Design
  ◆ Energy-efficient Approximate Arithmetic Units & DSP Module
  ◆ Approximate DSP chip for wireless & optic communication
  ◆ Approximate Voice/Image Recognition Accelerator
Introduction to CEIC/CIC

- Photonic Integrated Circuits
  - Microwave Photonic Radar Pre-processing Chip
  - Micro Spectrometer Chip
  - Vector Measurement for Ultra-high Resolution Optical Chip
Introduction to CEIC/CIC

◆ Borophene and Borophene-based Circuits
  ◆ Theoretical Design of Borophene
  ◆ Generation of Borophene-based Device
  ◆ Milestone in Boron Nanostructures

First time in the world for generating Borophene: a new 2-D atomic crystal material

Borophene NVW and test Equipment
*Angew. Chem. Int. Ed.* 2020, 59, 10819
Introduction to CEIC/CIC

- UAV Radar Imaging Chip
- Low-power Graphic Card for Aircraft
- Aero-engine Controller
- Irradiation Resistant Chip
- Solid-state Plasma Reconfigurable Antenna
Welcome to MOS-AK Nanjing

南京邮电大学 南京航空航天大学

MOS-AK 2023, Nanjing