Follow-on Workshop to Spent Fuel Management:
Technocal and Political Issues on the Backent of Fuel Cycle
August 16-18, 2016 , Hilton Hawaiian Village, Honolulu, USA

INTRODUTION TO CHINA-US CENTER OF EXCELLENCE (COE) ON NUCLEAR SECURITY

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OUTLINES

- Background
- General view of the COE
- Facilities and Equipment
- Prospects

Background

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- **In April 2010, the first Global Nuclear Security Summit (NSS) was held in Washington to combat the ever increasing threats of nuclear terrorism.**

Background

- The Summit focused on how to better safeguard WGPu and HEU to prevent nuclear terrorism.

- During the NSS, Chinese President Hu Jintao and the US president Barack Obama reached consensus and decided to build a joint Center of Excellence (COE) on nuclear security, with the aim at increasing capabilities of nuclear security in China and Asia Pacific countries.

Background

- **In November 2011, China's CAEA and US DOE signed the MOU on joint construction of the COE.**
- **In April 2012, CAEA and DOE signed an agreement of project budget of COE.**

Background

- **In October 2013, Mr. Ma Xingrui of CAEA Chairman and Mr. Ernest Moniz of DOE Secretary attended the foundation laying ceremony of the COE.**

Background

- **Experts from China and the USA at the construction site of the COE.**

Background

- **The COE under construction**

Background

- **COE's construction completed in December 2015**

Background

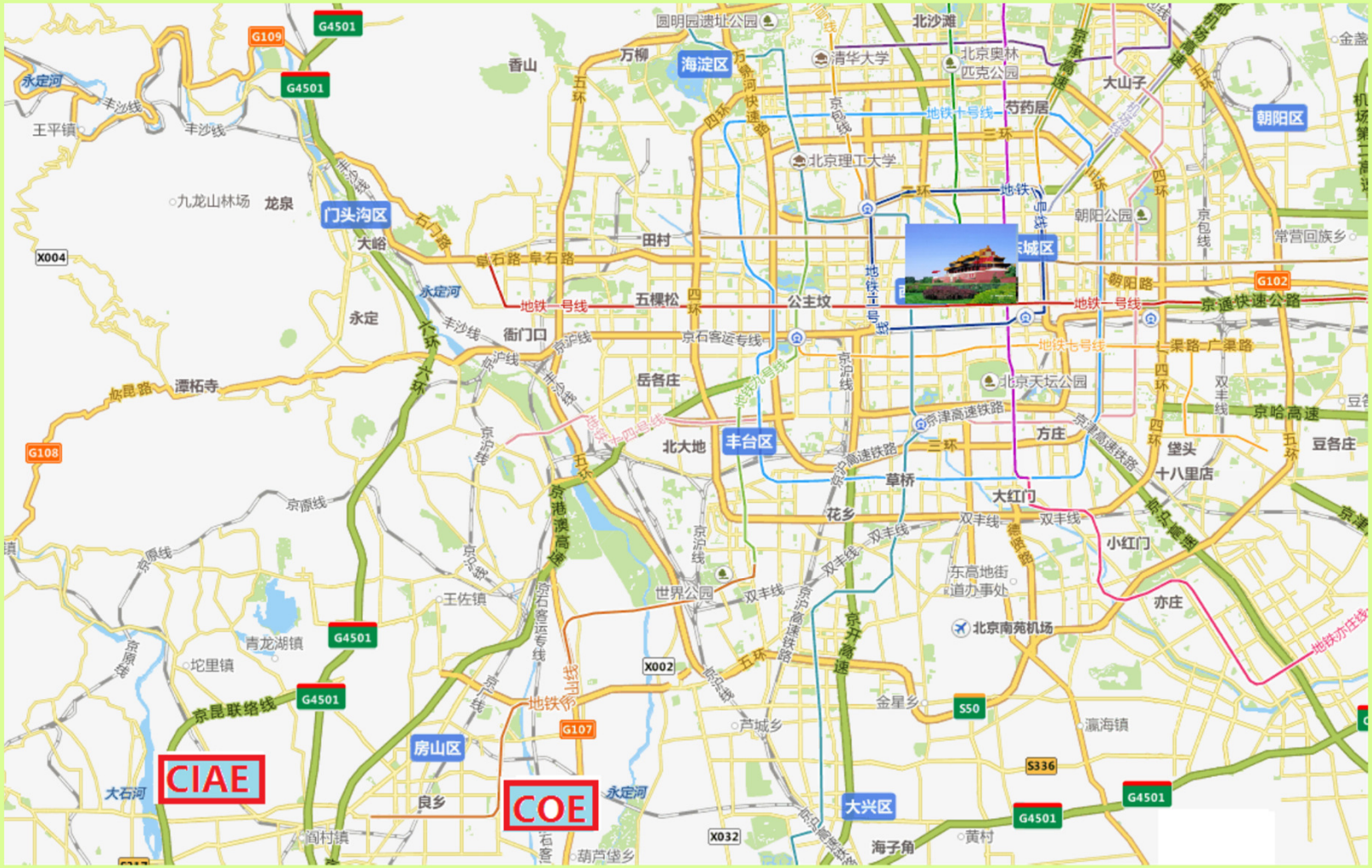
- **On March 18, 2016, the opening ceremony of COE was held. DOE Secretary Mr. Ernest Moniz led a US delegation to the opening of COE.**

- **Mr. Moniz said that the US-China joint COE is the largest nuclear security center in the Asia-Pacific.**

General view of the COE

General view of the COE

COE is located some 35 km SW of downtown Beijing



General view of the COE

COE covers an area of 53,300 m²

Functioning of the COE

The COE is equipped with advanced facilities of

- ✓ **NM analysis**
- ✓ **NS testing**
- ✓ **Response capability training & exercises**

Functioning of the COE

Functioning of the COE

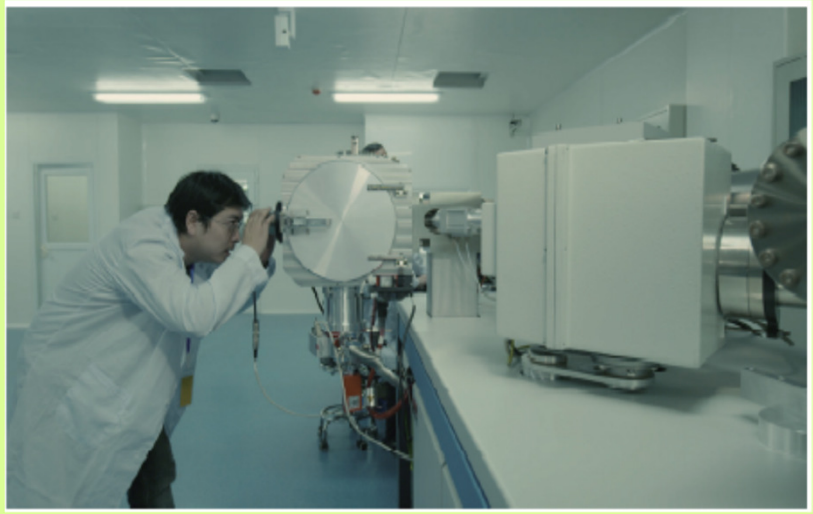
Facilities and equipment

Facilities and equipment

DA analytical lab, including clean lab

- **Q-ICP-MS, for measuring isotope component and impurities of the U, Pu materials**

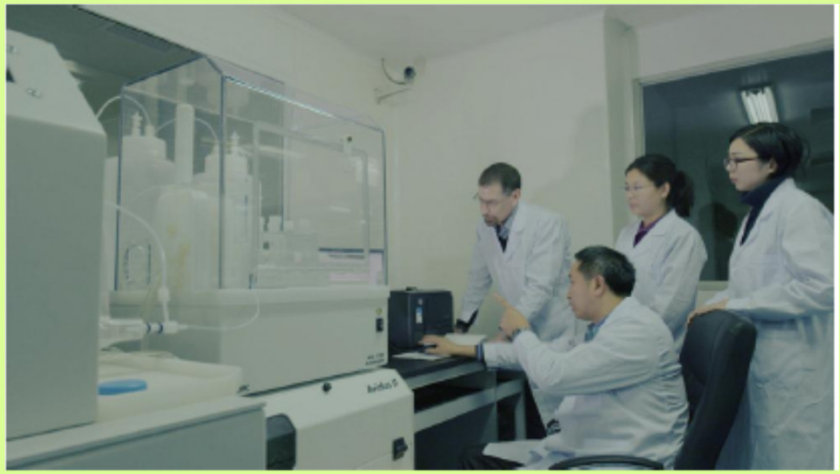
- **TIMS, for measuring both isotope component and element content with high accuracy**



Facilities and equipment

DA analytical lab, including clean lab

- **Hi-resolution ICP-MS, for measuring trace amount of U and Pu and impurities of NM**



- **WDXRF, for measuring U and Pu content in bulk materials for NM accounting**

Facilities and equipment

NDA analytical lab

- **Induced neutron detector, for measuring U-235 content in a fuel assembly**

- **WDAS, for measuring Pu content in waste drum by detecting spontaneous neutrons of Pu-240**

Facilities and equipment

NDA analytical lab

- **TGS, for measuring SNM in-drum waste with low and intermediate density by tomographic γ scanning**

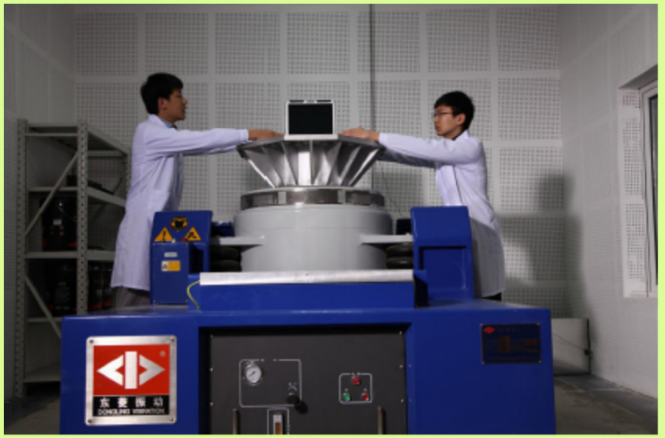
- **Calorimeter, for measuring Pu content by detecting the α decay heat of Pu with high accuracy**

Facilities and equipment

Environmental testing lab

for testing the reliability of NS equipment or systems under different environmental conditions

- **Vibration deck, for testing the reliability of the structure and mechanical properties under vibration conditions**



- **Water testing equipment, for testing the leakage and water-proofness of the simulated NM**

Facilities and equipment

Environmental testing lab

for testing the reliability of NS equipment or systems under different environmental conditions

- **Sand blasting equipment, for testing abrasion, erosion of the simulated products under sandstorm condition**

- **Salt mist box, for testing the anti-corrosion property of the parts to salt mist**

Facilities and equipment

Environmental testing lab

- **Temperature-moisture test box, for testing the resistance to high and low temperature, dryness and moisture of the products**

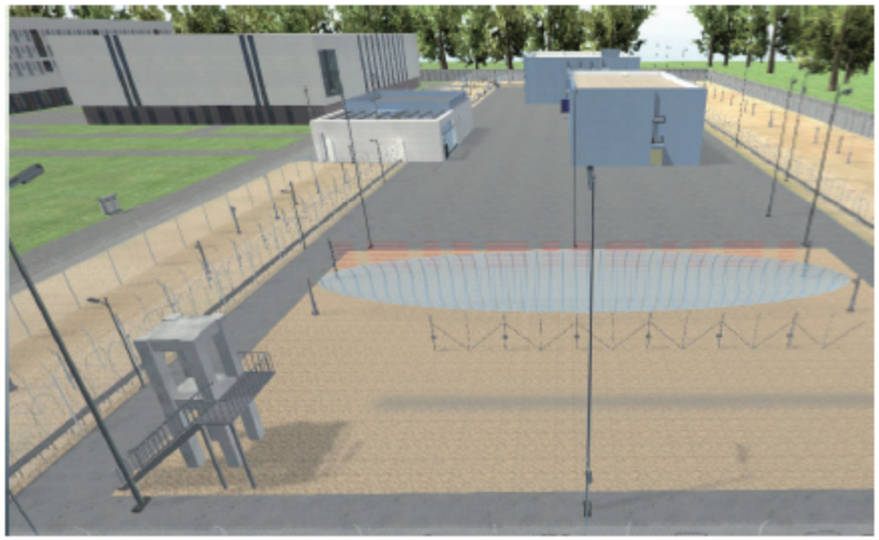
- **Electro-magnetic test system, for detecting the electro-magnetic interference by the electronic devices and their anti-electromagnetic capability**

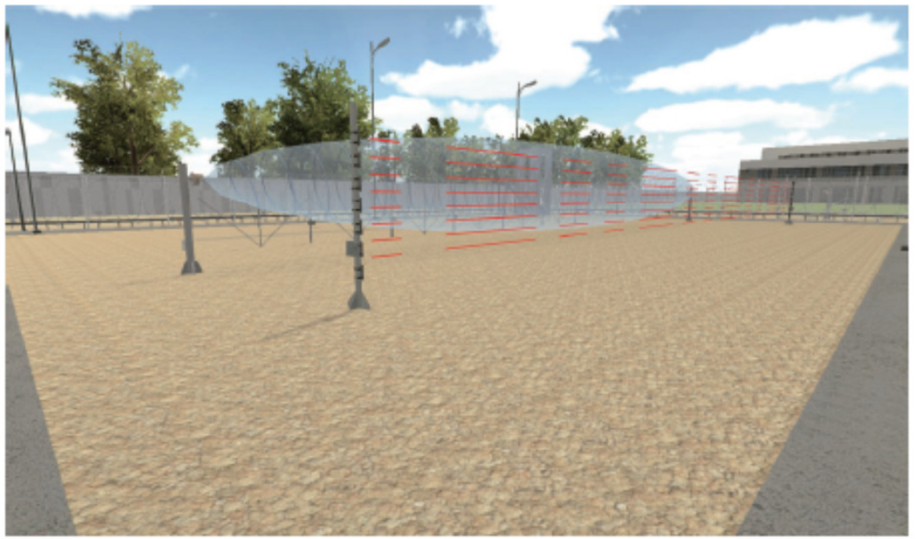
- **Xenon lamp box, for accelerated photo aging test, using xenon lamp to simulate the sun light**

Physical protection testing area

- Access control facility
- Outdoor testing site of intrusion detecting devices at protection boundary
- Mock NM bunker
- Outdoor mobile emergency commander system
- Nuclear security training system for NM railway transportation

Physical protection testing area





Facilities and equipment

Response capability training & exercise facility

3600 m^2

For training of tactic exercises and shooting for security personnel

- **Practical shooting training area**
- **Dry running training area**

Facilities and equipment

Response capability training & exercise facility

3600 m^2

- **Dry running training area**

Facilities and equipment

Response capability training & exercise facility

3600 m^2

- **Practical shooting training area**

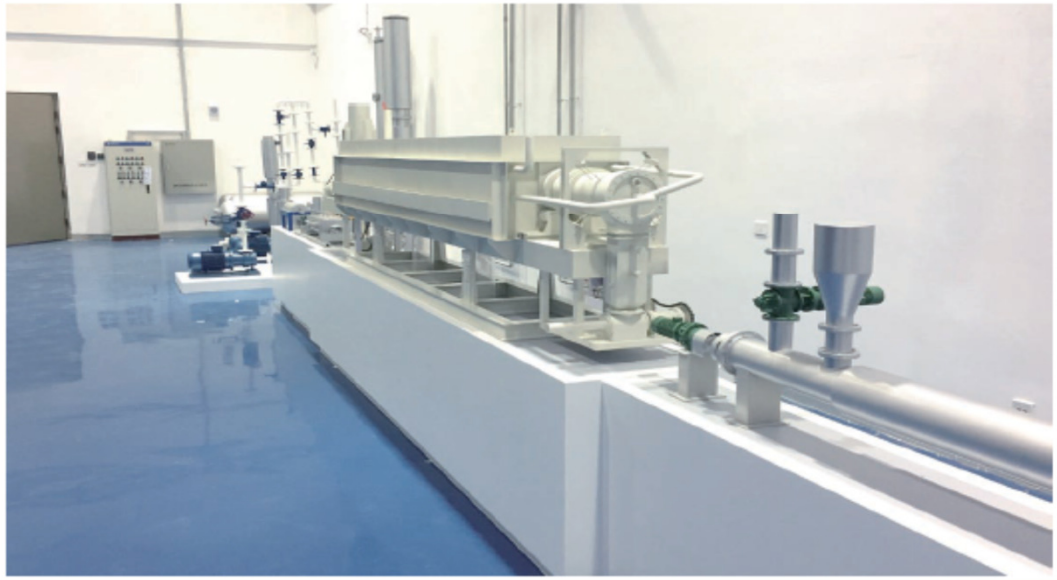
Facilities and equipment

NM Accounting/control training facility

- **Mock fuel fabrication facility**
- **NM accountancy accounts system**
- **Mock NM bunker**
- **NM Sealing**

Facilities and equipment

NM Accounting/control training facility



Facilities and equipment

NM Accounting/control training facility

- **NS Response/emergency commander center**

Prospects

Prospects

- **The COE will serve as an important domestic nuclear security training resource for China's growing nuclear complex.**

- **Beyond China, in concert with other COEs in the region, it will provide a forum to train relevant personnel across Asia in nuclear security best practices.**

- **The COE will strengthen the international cooperation and exchanges in the area of nuclear security, share the experience of advanced technology and management, and raise the capability of nuclear security.**

THANK YOU!

谢谢！