조현석 핵물리실험 (Experimental Nuclear Physics)

핵물리실험 연구실

핵자 구조 (쿼크와 글루온)

- CLAS12 : 미국 제퍼슨 가속기연구소의 전자빔을 이용하는 핵자 구조 실험

중성미자

- AMoRE : 중성미자 없는 이중베타 붕괴 탐색 실험
- KNO : 차세대 중성미자 검출시설

암흑물질

- BDX : 미국 제퍼슨 연구소의 전자빔을 이용하는 암흑물질 탐색 실험

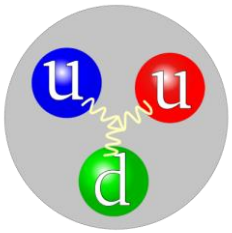
의학물리

- 국립암센터 양성자치료센터와 진행되는 의학물리 공동 연구

2020.11.18

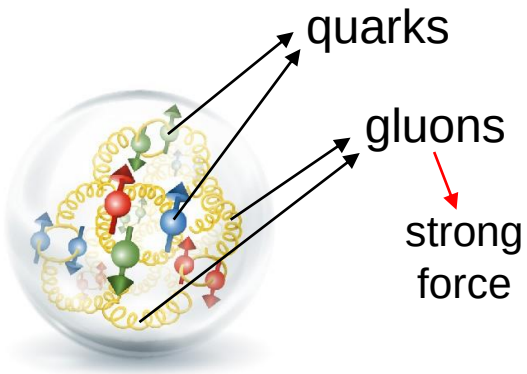
Hadron Physics at Jefferson Lab (USA)

Structure of the nucleon : how are the quarks and gluons distributed (in space, momentum, spin) and correlated inside the nucleon?

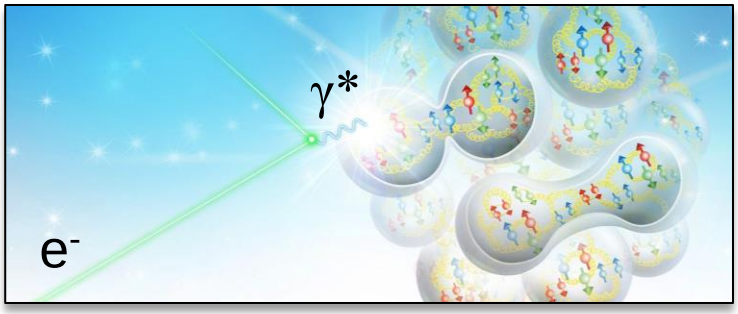


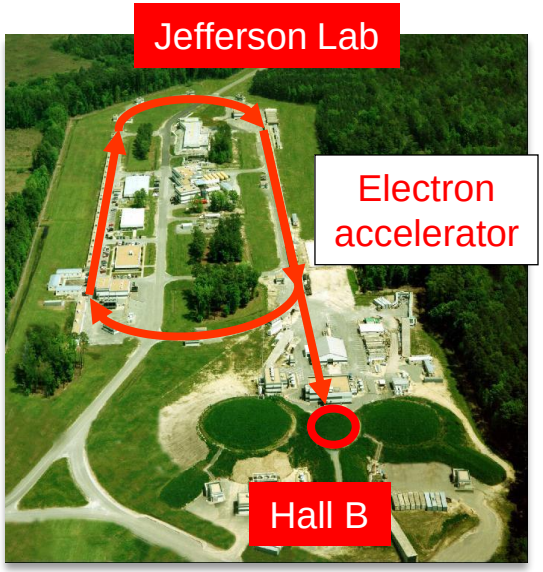
proton

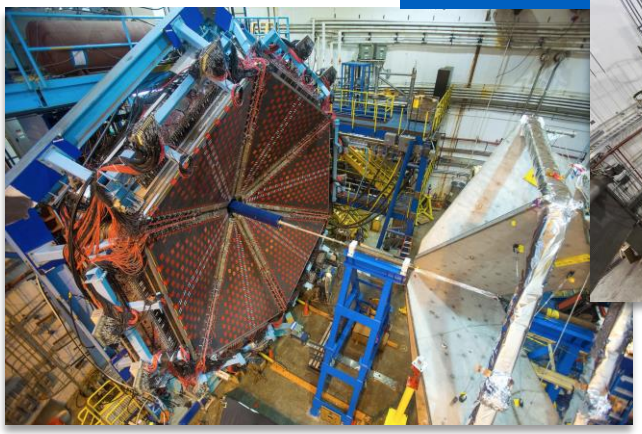
More precise image of the nucleon

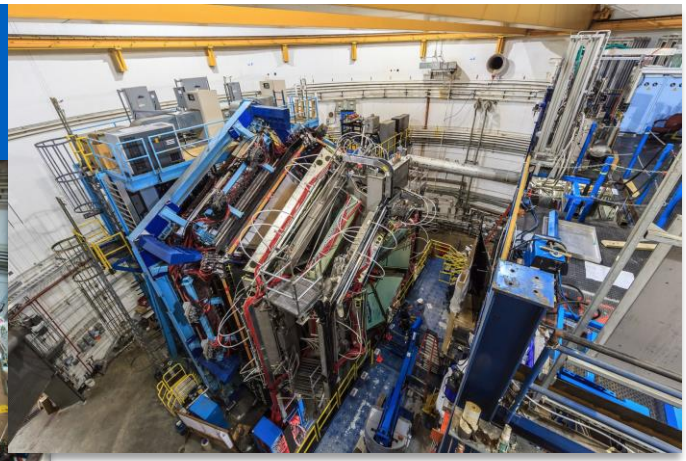


proton





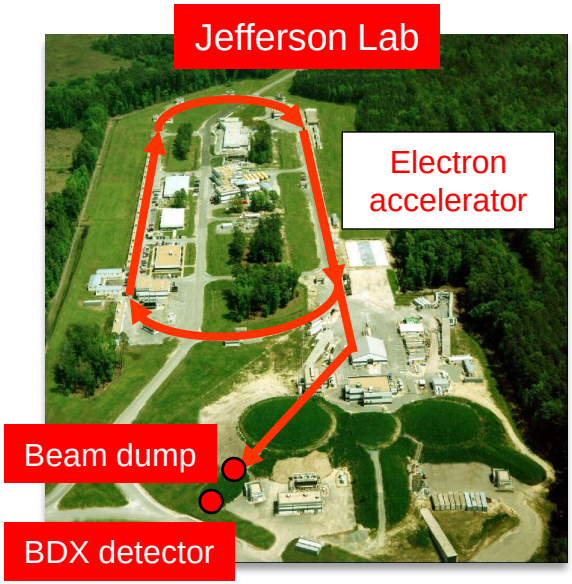


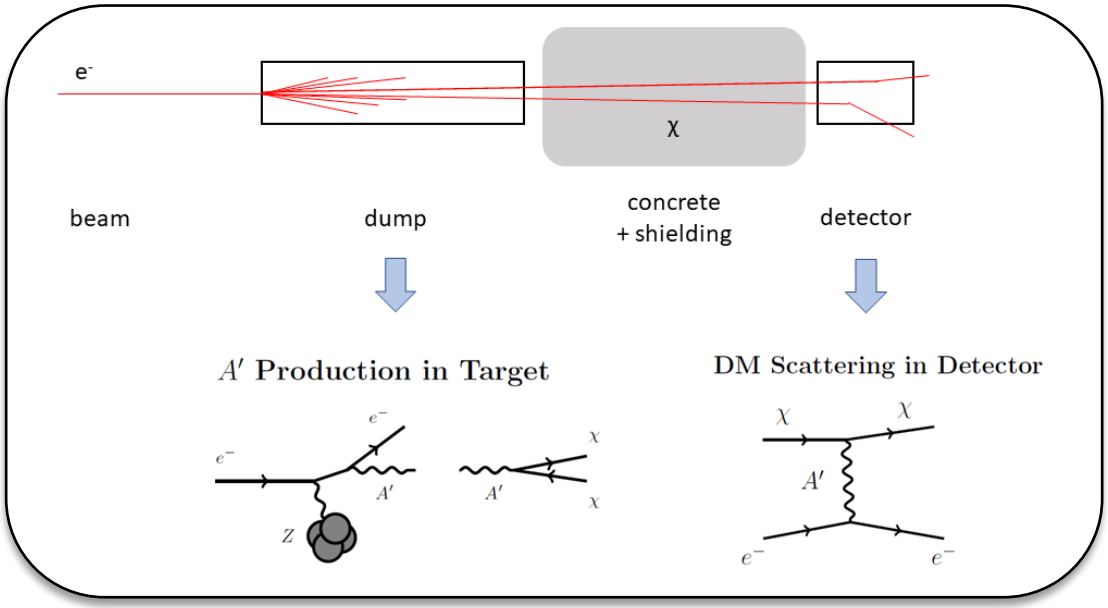


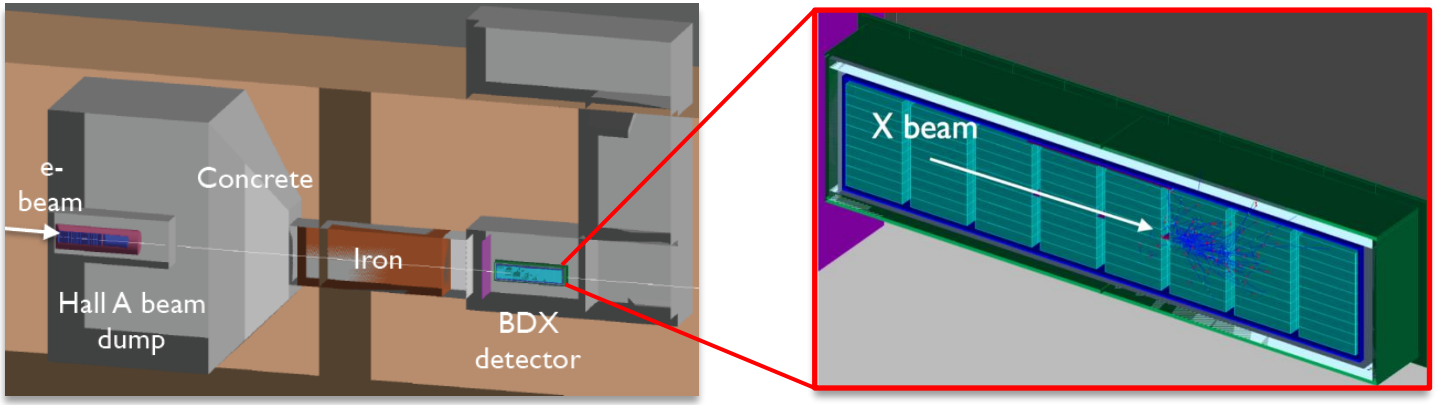
CLAS12 detector in Hall B

Dark matter search at Jefferson Lab (USA)

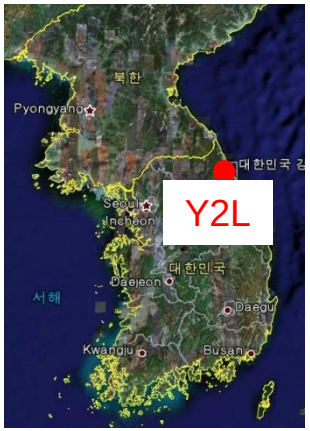
The goal of the BDX experiment is to produce and detect dark matter using the electron beam of Jefferson Lab



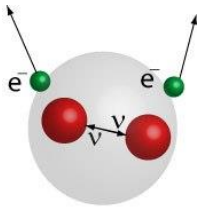




AMoRE : 중성미자 없는 이중베타 붕괴 탐색 실험



700m-deep underground lab at Yangyang

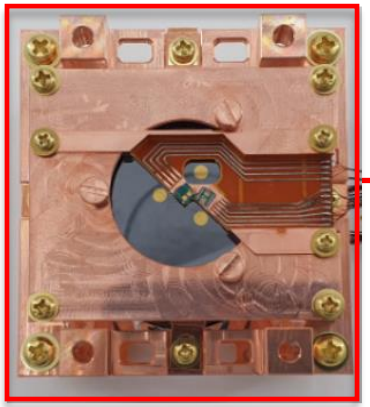


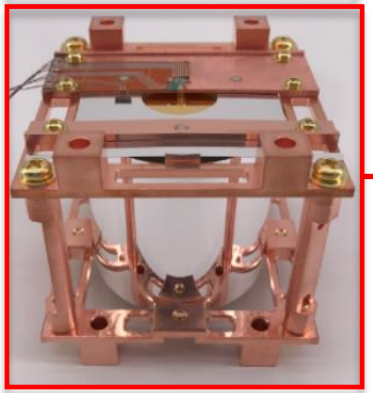
$0\nu\beta\beta$

Observation of neutrinoless double beta decay would reveal the nature and mass of the neutrino

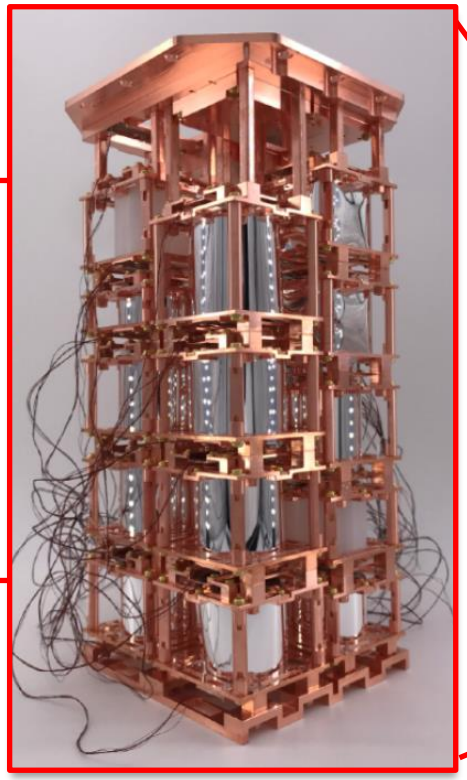
Scintillation crystals equipped with a light detector and a heat detector
AMoRE I : 18 crystals - AMoRE II : ~500 crystals

Light detector

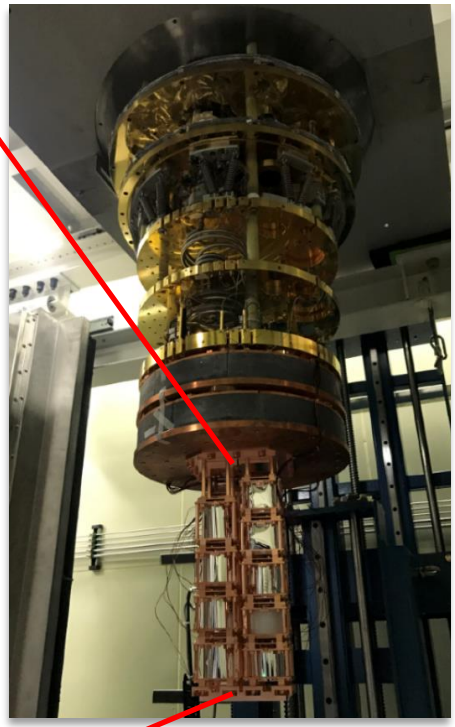




Heat detector



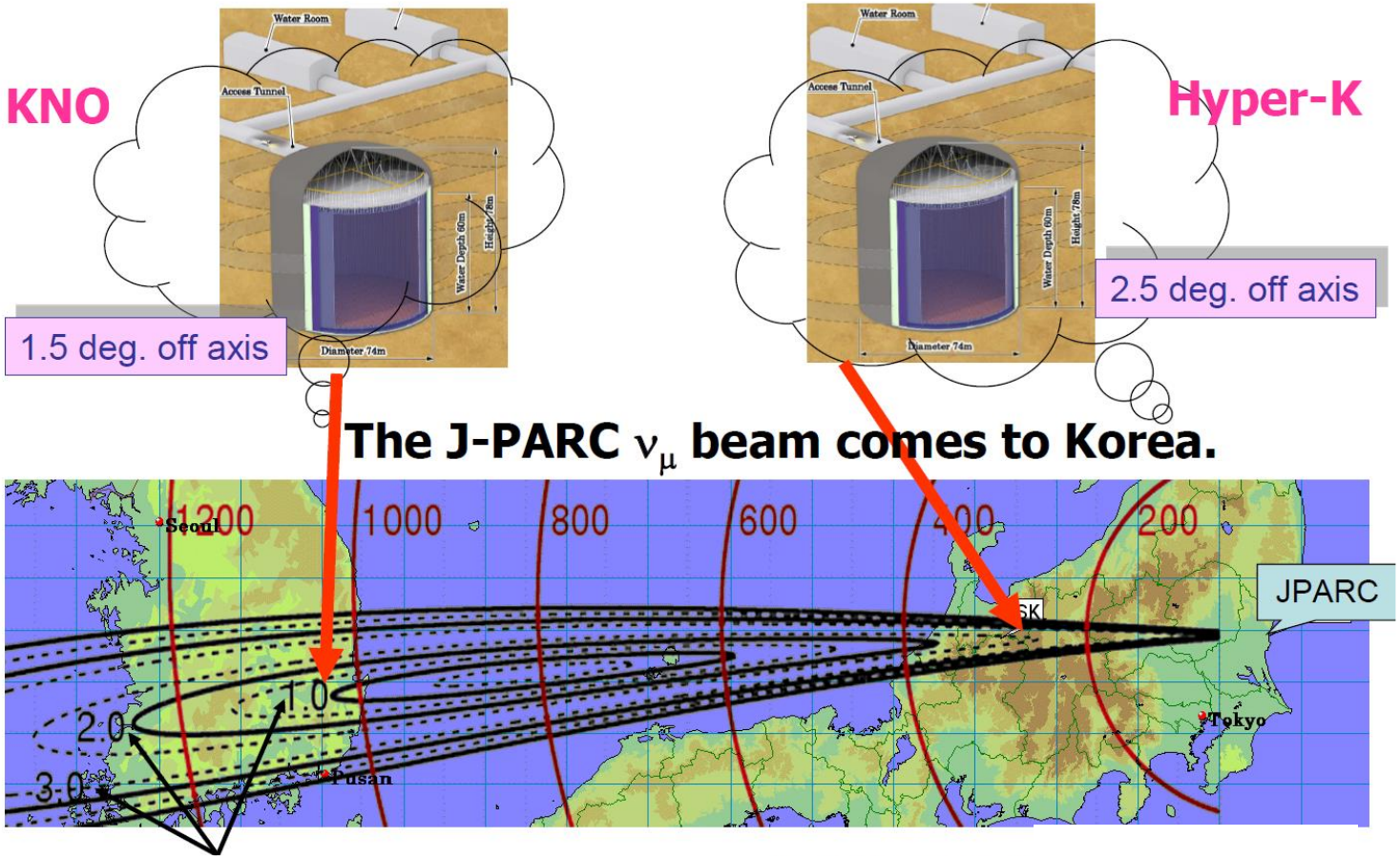
AMoRE I detector tower



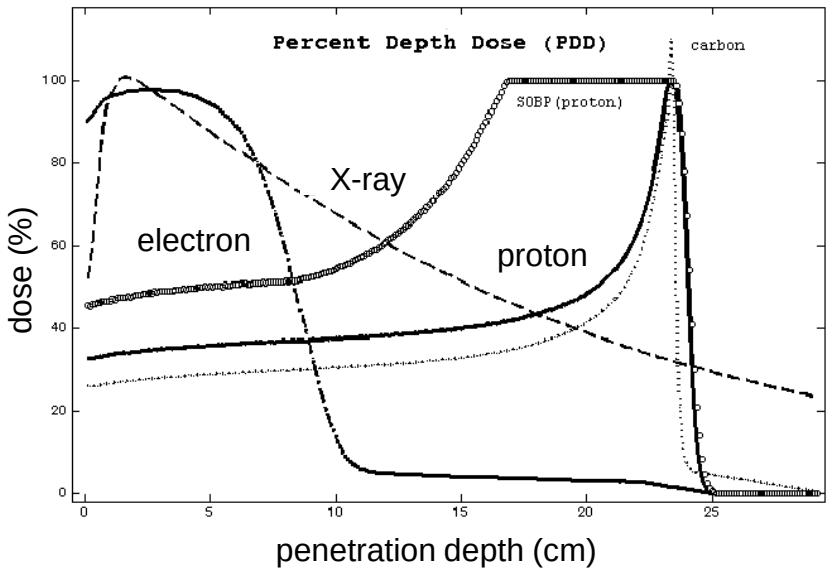
Low-temperature detectors operated at **10 mK** by using a dilution refrigerator

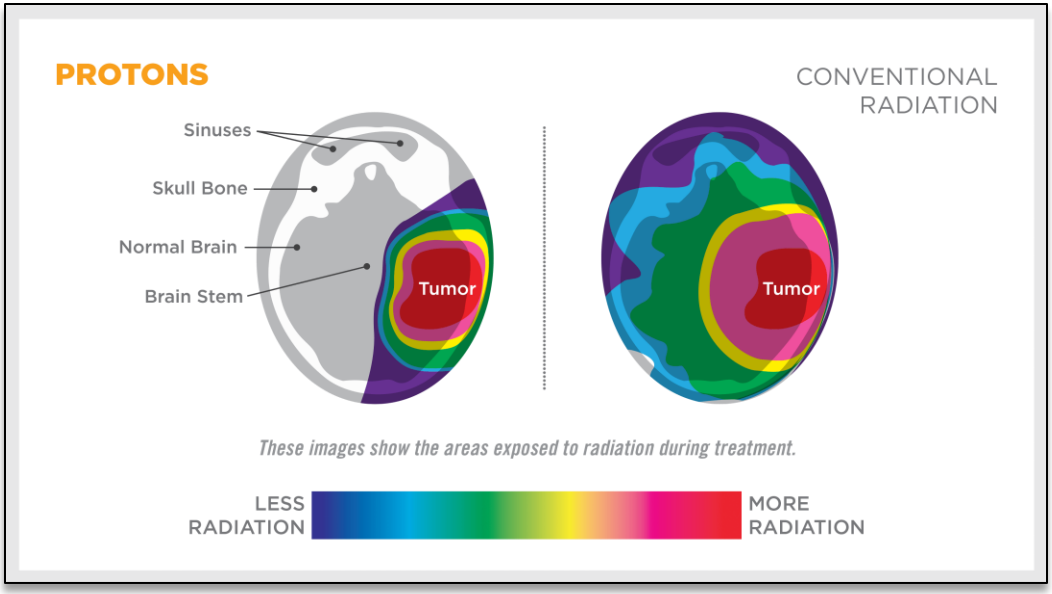
KNO : 한국 차세대 중성미자 검출시설

The goal of the Korean Neutrino Observatory (KNO) project is to build in Korea a detector similar to the future Hyper-Kamiokande detector to detect the neutrinos coming from JPARC



양성자치료 관련 의학물리 연구





국립암센터 양성자치료센터와
진행되는 의학물리 공동 연구