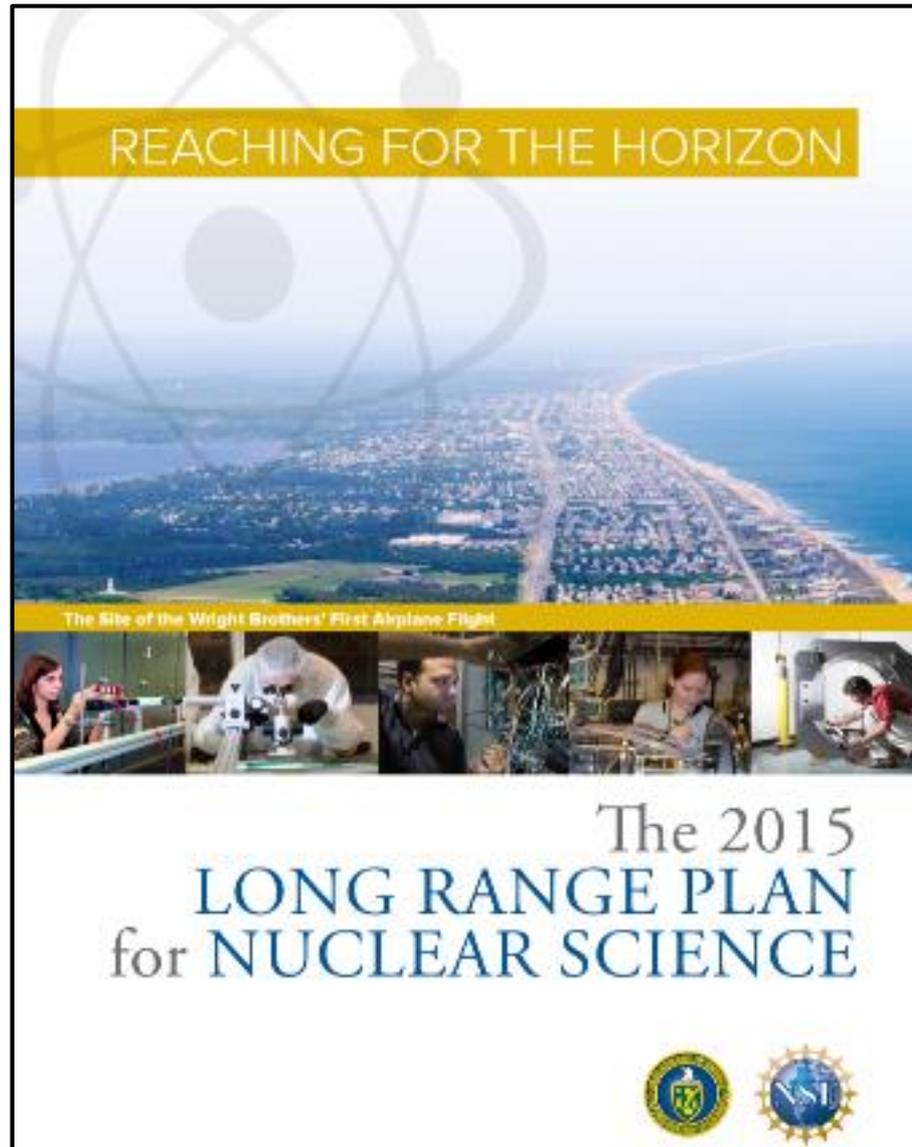


# Snapshot on the 2015 LRP Progress



# Snapshot of the 2015 LRP Progress

- What are our “physics destinations” ?
- What has “taken off” ?
- What remains “on the runway” ?

## RECOMMENDATION I

The progress achieved under the guidance of the 2007 Long Range Plan has reinforced U.S. world leadership in nuclear science. The highest priority in this 2015 Plan is to capitalize on the investments made.

- *With the imminent completion of the CEBAF 12-GeV Upgrade, its forefront program of using electrons to unfold the quark and gluon structure of hadrons and nuclei and to probe the Standard Model must be realized.*
- *Expediently completing the Facility for Rare Isotope Beams (FRIB) construction is essential. Initiating its scientific program will revolutionize our understanding of nuclei and their role in the cosmos.*
- *The targeted program of fundamental symmetries and neutrino research that opens new doors to physics beyond the Standard Model must be sustained.*
- *The upgraded RHIC facility provides unique capabilities that must be utilized to explore the properties and phases of quark and gluon matter in the high temperatures of the early universe and to explore the spin structure of the proton.*

## RECOMMENDATION III

We recommend a high-energy high-luminosity polarized EIC as the highest priority for new facility construction following the completion of FRIB.

## RECOMMENDATION IV

We recommend increasing investment in small-scale and mid-scale projects and initiatives that enable forefront research at universities and laboratories.

## RECOMMENDATION II

We recommend the timely development and deployment of a U.S.-led ton-scale neutrinoless double beta decay experiment.

### B: Initiative for Detector and Accelerator Research and Development

- *We recommend vigorous detector and accelerator R&D in support of the neutrinoless double beta decay program and the EIC.*

### A: Theory Initiative

- *We recommend new investments in computational nuclear theory that exploit the U.S. leadership in high-performance computing.*
- *We recommend the establishment of a national FRIB theory alliance.*
- *We recommend the expansion of the successful Topical Collaborations initiative*

# Snapshot of the 2015 LRP Progress

- **TODAY**
  - Recommendation 1
  - Theory
- **Future Meeting**
  - EIC, Ton scale  $0\nu\beta\beta$ , computational NP, more small scale, ...

CEBAF Upgrade Status and Day 1 Physics	Bob McKeown Jefferson Lab
FRIB Construction Status and Day 1 Physics	Thomas Glasmacher Michigan State University
Theory Initiatives	Gail Mclaughlin North Carolina State University
<b>Break</b>	
RHIC Isotope and Energy Scan Run Status	Berndt Mueller Brookhaven National Laboratory
Status of $0\nu\beta\beta$ and FS Targeted Opportunities	Krishna Kumar Stony Brook University