

Operational Demands of ReA3 at NSCL

“Adapting to Change”
WAO 2012, Stanford University

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Outline

Introduction to MSU and NSCL

NSCL Operations Staffing

ReA3

ReA3 Staffing

Additional Staffing Factors

Funding

Adapting to Changes

Future

Questions



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Michigan State University

The United States pioneer land-grant university, established in 1855

In 2011, MSU enrollment consisted of ~47,000 students from all 50 United States and 130 countries



MSU has over 11,000 employees

Throughout the world, there are nearly half a million MSU alumni



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NSCL

National Superconducting Cyclotron Laboratory (NSCL) is a world leader in rare isotope research and nuclear science education

NSCL employees over 500 Faculty, Staff and Students

Located on the campus of Michigan State University

Ranked as the #1 graduate program In the United States by U.S. News &



10

[Columbia University](#) | New York, NY

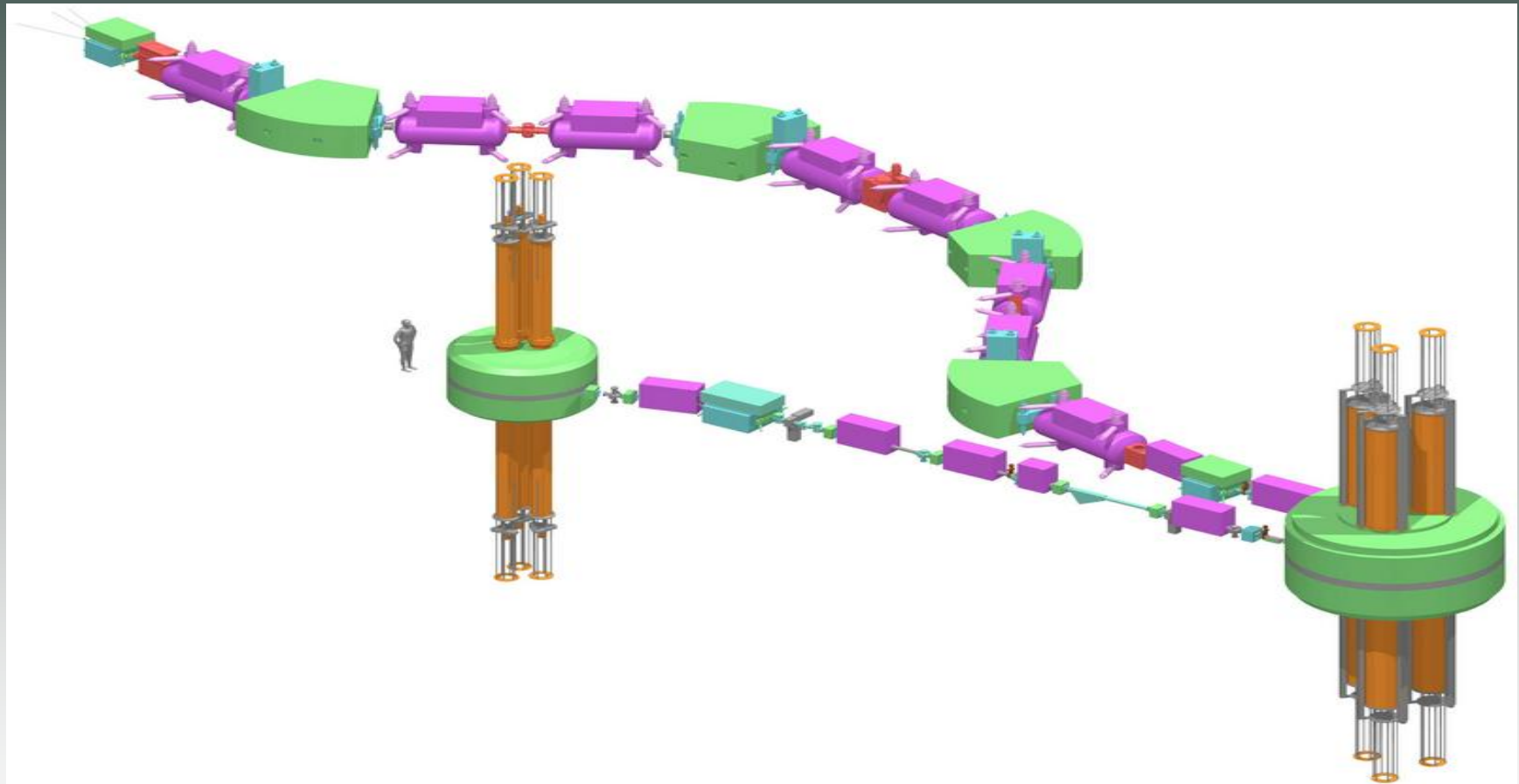
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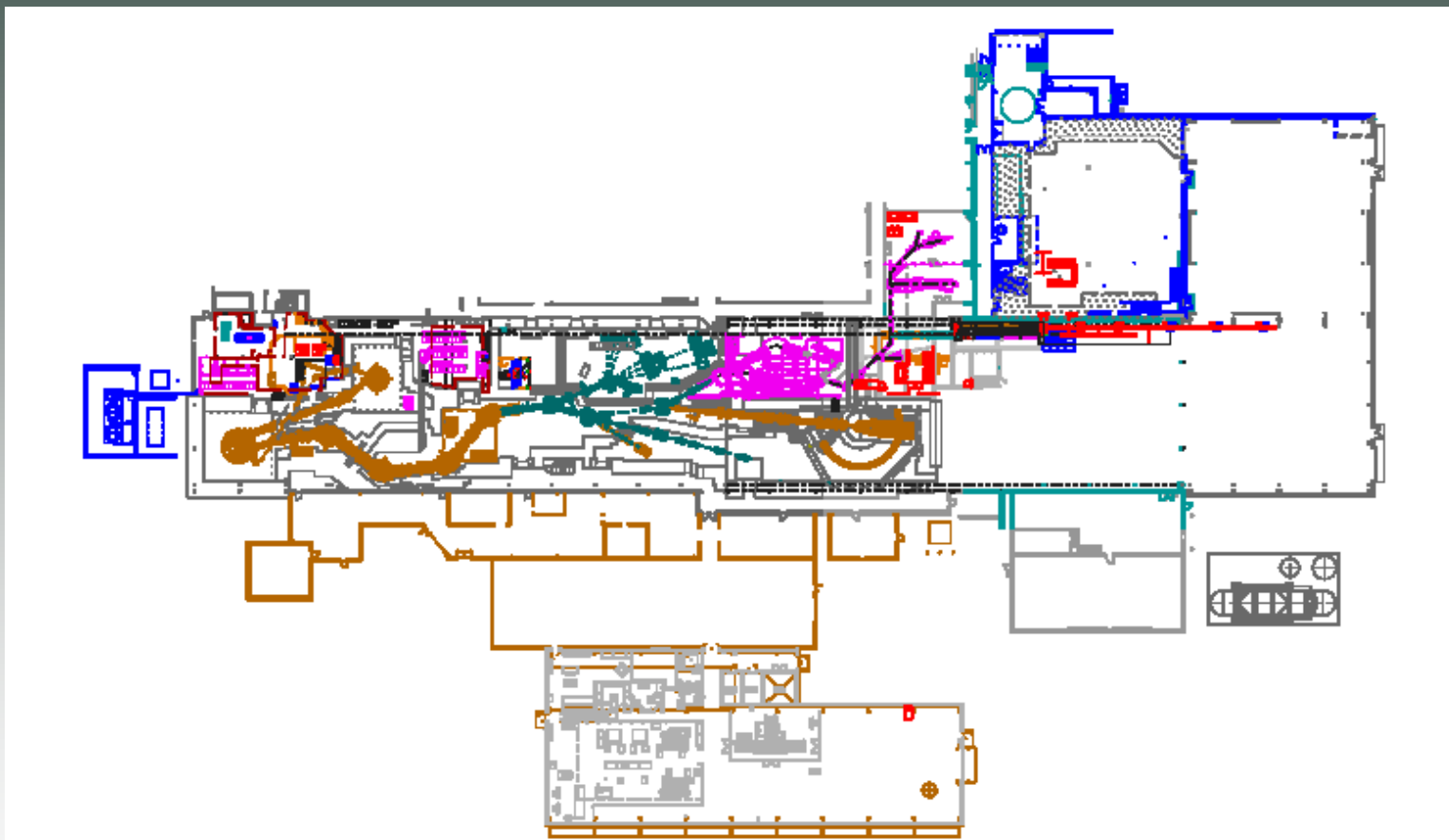
Cyclotrons & Beam Lines



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Experimental Layout



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NSCL Operator Group Staffing

Normal Staffing Level

12 operators with minimum two person coverage per shift during experimental periods

Three 8 hour shifts during weekdays and two 12 hour shifts during weekends

All operators work days during maintenance periods

Current Responsibilities

Receive beam from ECR group

Maintain beam from ECR

Tune beam through K500, Coupling Line and K1200

Hand beam to the A1900 group

Monitor beam related systems from ECR to Experiment

Perform preventive & corrective maintenance, plan & implement upgrades, project work



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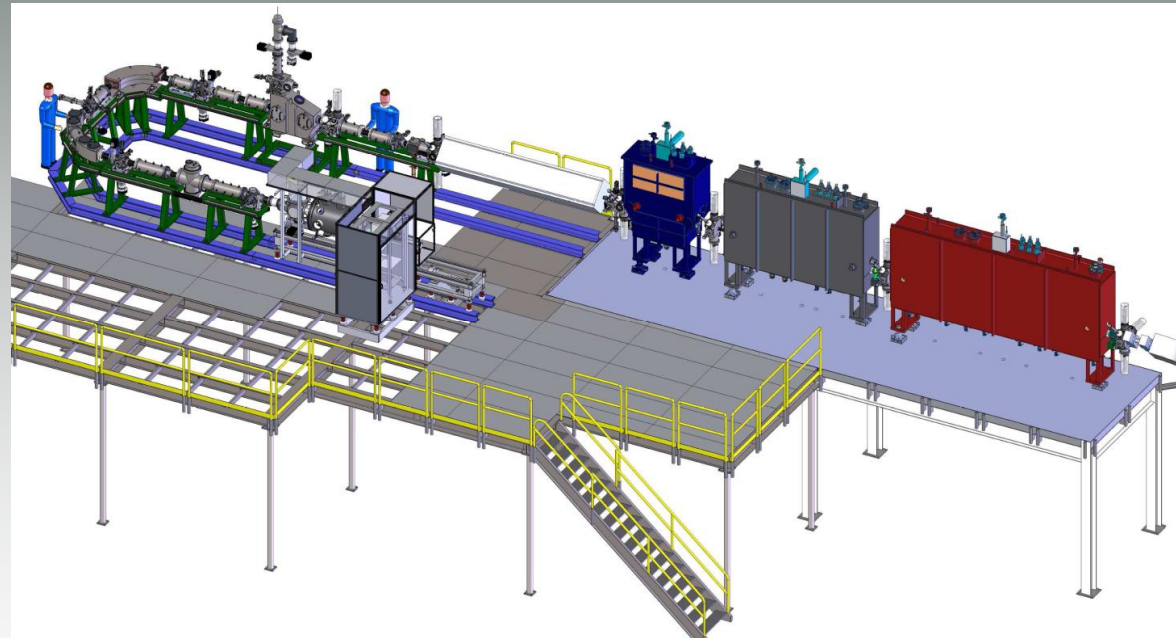
What is ReA3?

ReA3 provides world-unique low energy rare isotope beams produced by stopping fast, separated rare isotopes in a gas-stopper, and then reaccelerating them in a Linear Accelerator. It will make available reaccelerated beams of elements that are typically difficult to produce at ISOL facilities. *

ReA3 is currently in its commissioning phase

ReA3 will be an integral part of FRIB operations

Commissioning control room located underneath raised platform



* <http://www.nsl.msui.edu/exp/sr>



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ReA3 Staffing

Original staffing: 3 Full Time Equivalents (FTE's)

- Project Manager
- Commissioning Manager
- Graduate Student

2 NSCL operators (half-time each)

Full Time Maintenance Engineer Needed

Skilled, but untrained (new hire) operator pulled from NSCL operations

More personnel needed to meet increased ReA3 commissioning hours

Undergraduate hired to assist in operation and maintenance

Additional increase in ReA3 commissioning hours

2 more NSCL operators trained in ReA3 operation

All NSCL operators trained (2 operators during two week shifts)



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ReA3 Staffing

One full-time operator determined to be more desirable than 2 half-time operators

Full-time operator moved to ReA3 for commissioning

Remains in the operator group



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Additional Factors Affecting Staffing

Operator leaving to pursue other career ambitions

Operator temporarily transfer to another department

Operator out for medical leave



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Funding

NSCL experienced reduced funding

This lead to reduced NSCL operating hours

Opportunity taken to divert effort for commissioning activity

Funding provided by the university for continued ReA3 commissioning

NSCL not funded to operate, only commission ReA3

When operational costs are demonstrated, budget increase will be requested



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How has NSCL Operations Adapted?

Schedule

Adjustment to maintain 2 operators on back shift by single staffing on some day shifts

Personnel are not scheduled with parity over the short term due to minimized staffing

Scheduling parity will be maintained over long periods

Training

Training of NSCL operators during scheduled maintenance to minimize impact NSCL operational schedule

Maintenance tasks are delayed or postponed if training during scheduled maintenance

Task prioritization

Hiring/Resource Reallocation

Hiring needs to take place far enough in advance to complete hiring process before it effects current staffing

Resource allocation should be beneficial to all parties



How has NSCL Operations Adapted?

Being Small Helps

Allows greater flexibility



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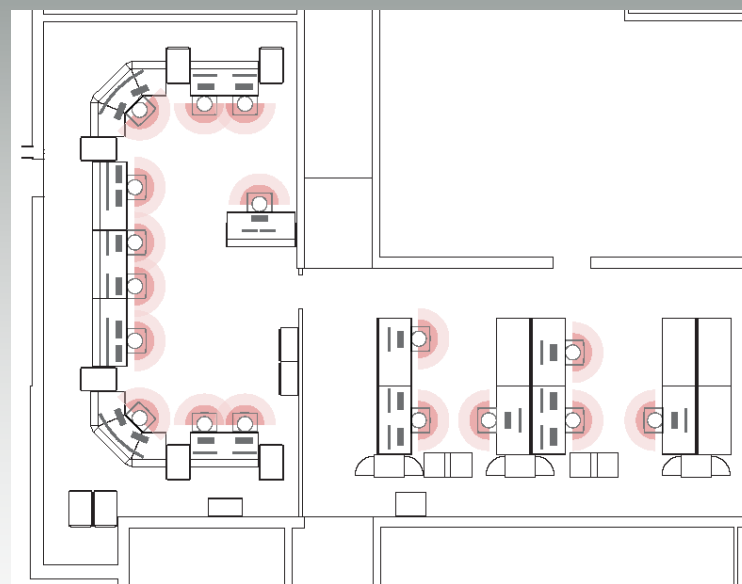


Future

Combine both control rooms to leverage personnel/equipment

Increased commissioning hours for ReA3

It is estimated that 15 operators will be required to operated the CCF and ReA3



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Questions ?



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