

Spare Parts Inventory at NSCL

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Outline

Introduction to NSCL & MSU

Why is an Inventory Management System Important

Hardware Overview

Software Overview

Managing Inventory

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Wireless Scanner

Future

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Michigan State University

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

In 2010, MSU enrollment consisted of 47,131 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



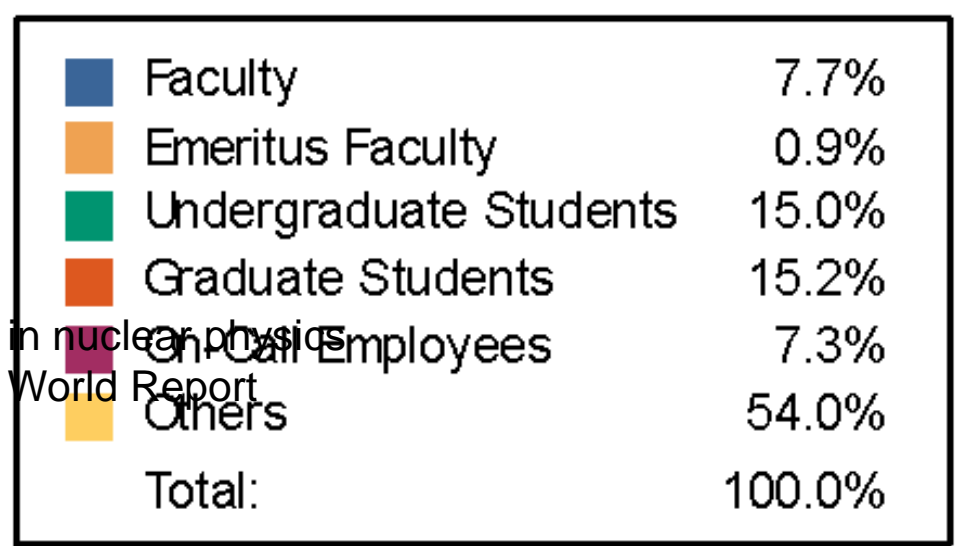
NSCL

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

NSCL employees 454 Faculty, Staff and Students

Located on the campus of Michigan State University

Ranked as the #1 graduate program in nuclear physics in the United States by U.S. News & World Report



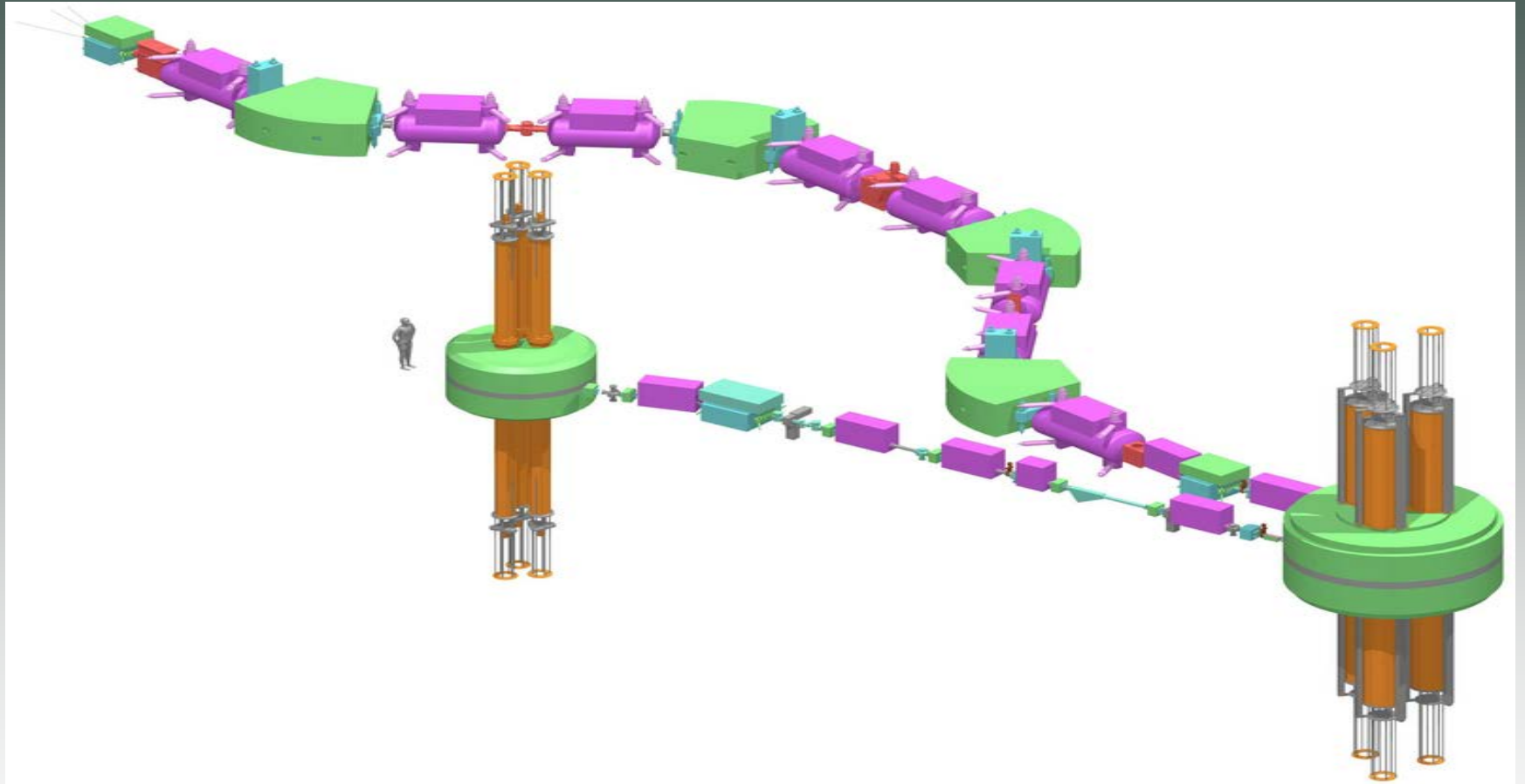
8	Duke University Durham, NC
	University of California--Berkeley Berkeley, CA
10	Columbia University New York, NY
	University of Illinois--Urbana-Champaign Urbana, IL



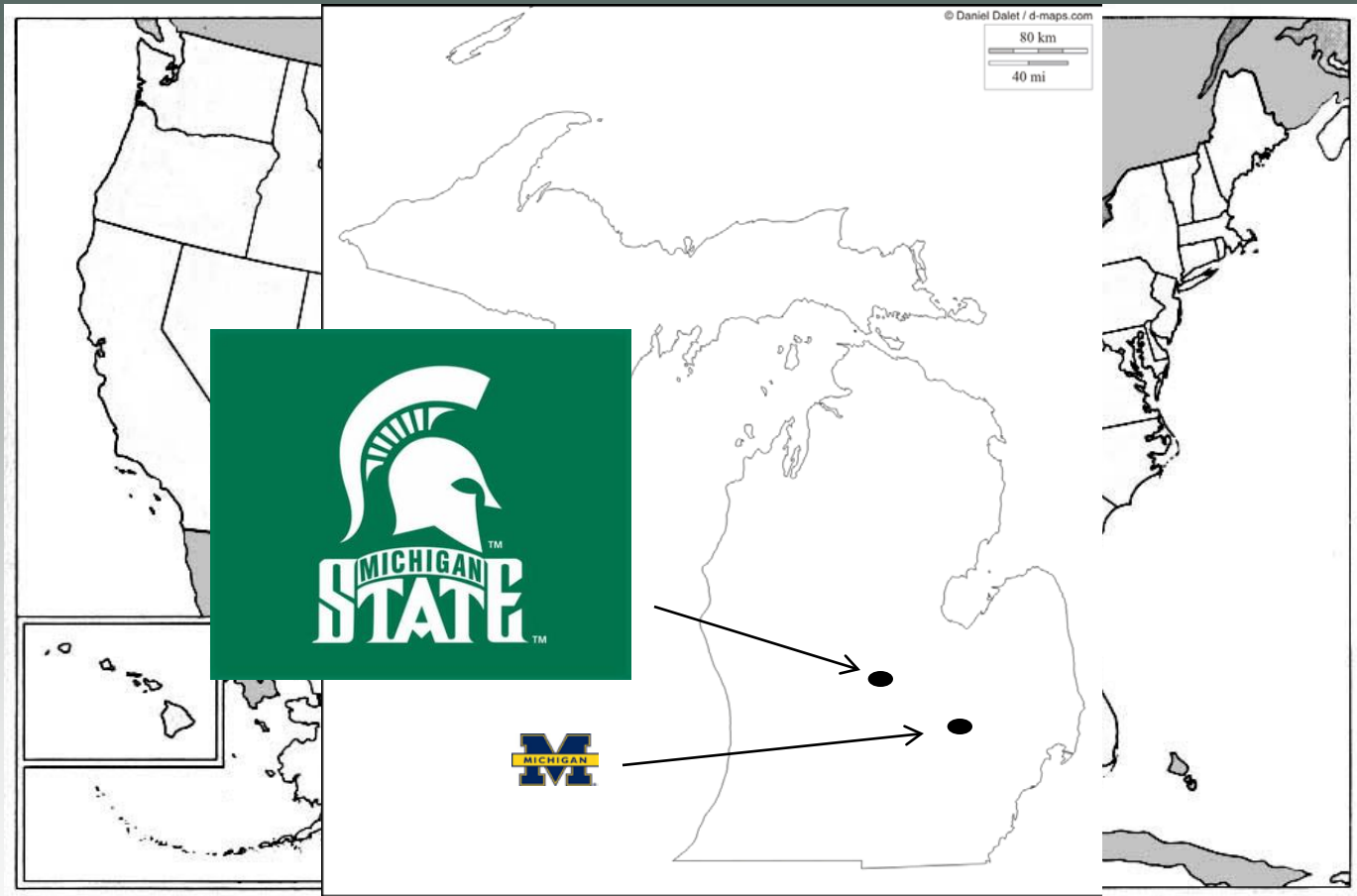
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Cyclotrons & Beam Lines



Where is Michigan State University ?



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Why is an Inventory System Important?

Efficiency

Time spent searching for spares can be significant over the course of a year

Time spent waiting for parts on order can be significant for a specific repair

Cost

Know what levels to keep in stock can save money

Faster repair, less down time, back to the experimental program faster

Quality

Meet quality management system objectives

Avoid patch jobs (and more down time later) by having the correct part when needed



Cost Savings

Time spent searching for spares can be significant over the course of a year

EXAPMLE:

For an operational cost of \$3500/hr (USD)

If 15 minutes are saved by not having to search for a particular part

Assuming this is true for just 1 repair per month

$$\$3500/60\text{minutes} = \$58.33/\text{minute}$$

$$\$58.33/\text{minute} \times 15\text{minutes}/\text{repair} = \$875/\text{repair}$$

\$10,500/year in cost savings



What's in NSCL's Inventory?

1059 unique items

167 Manufactures

5 different areas (rooms)

94 Individual Bins

8552 Total parts



Inventory Application

Stockbook

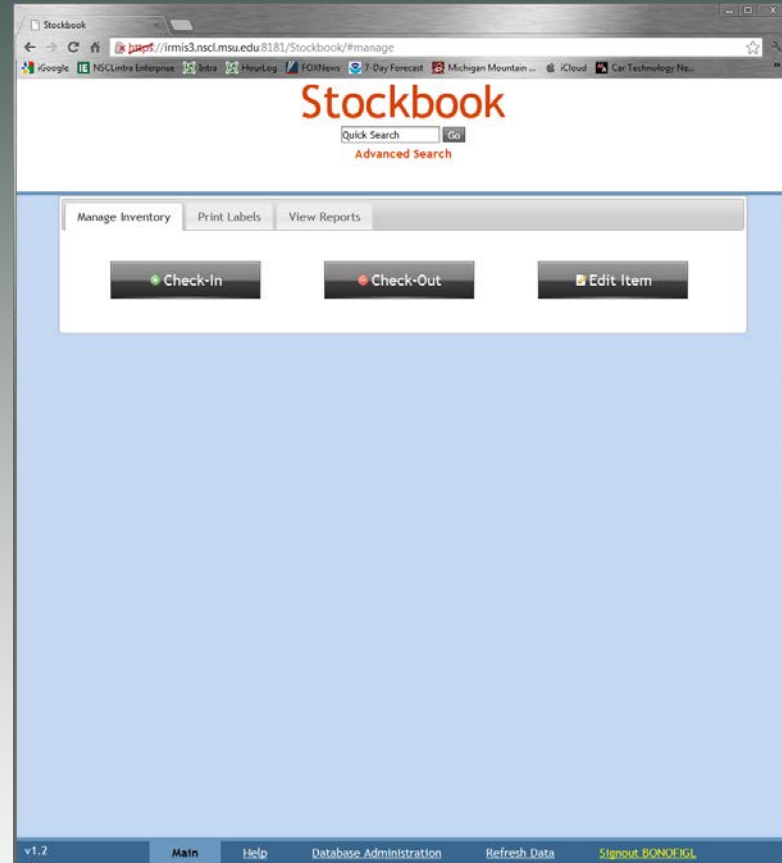
Web Interface

Accessible throughout the lab

Simple Interface

Ability to handle digital photos

Have reporting functionality



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Hardware Setup

PC/Monitor

UPC Label Printer

Wired Scanner

Wireless Scanner

Digital Camera/Tripod

Photography Studio

Storage Bins

Storage Space



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What Does NSCL Track In Inventory?

Consumables: Stripper Foil, Targets

Non-Serialized items: Filters, O-rings.....basically, any spare part

Serialized items: Couplers, RF Tubes

Tools: FLIR Scope, Label Maker, Digital Camera

Fixtures: Items used to do assembly, jigs, rarely used items



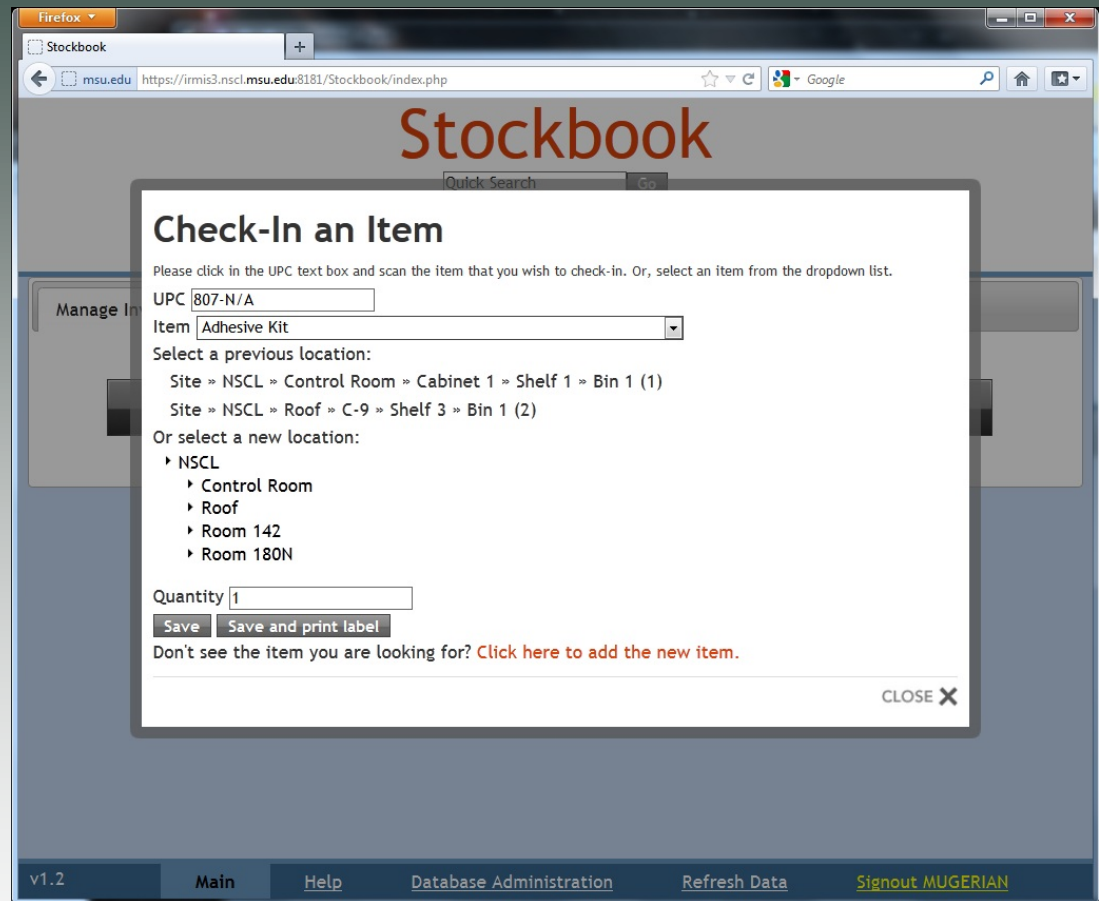
Check-In

Parts that arrive are stored in a temporary location

Existing part

New Part

Duplicate parts do NOT have to be kept in the same location



The screenshot shows a web browser window with the URL `https://irmis3.nsl.msue.edu/Stockbook/index.php`. The page title is "Stockbook". A modal window titled "Check-In an Item" is displayed. The form contains the following fields and options:

- UPC:
- Item:
- Select a previous location:
 - Site » NSCL » Control Room » Cabinet 1 » Shelf 1 » Bin 1 (1)
 - Site » NSCL » Roof » C-9 » Shelf 3 » Bin 1 (2)
- Or select a new location:
 - NSCL
 - Control Room
 - Roof
 - Room 142
 - Room 180N
- Quantity:
- Buttons:
- Text: "Don't see the item you are looking for? [Click here to add the new item.](#)"
- Close button:

At the bottom of the browser window, there is a navigation bar with the following links: `v1.2`, `Main`, `Help`, `Database Administration`, `Refresh Data`, and `Signout MUGERIAN`.



Check-Out

The screenshot shows a Firefox browser window displaying the Stockbook website. The search results for "rupture foil" are as follows:

Item Name	Score	Location(s)	Qty	Actions
K1200 Cryostat Rupture Foil	36	Site » NSCL » Room 142 » Cabinet 2 » Shelf 3 (1)	1	Details Print Label
Rupture Foil Slip-On Cover	34	Site » NSCL » Room 142 » Cabinet 2 » Shelf 1 » Bin 6 (2)	2	Details Print Label
Rupture Foil Bolt-On Cover	34	Site » NSCL » Room 142 » Cabinet 2 » Shelf 1 » Bin 6 (2)	2	Details Print Label

The interface also includes a search bar with "rupture foil" entered, a "Go" button, and an "Advanced Search" link. A navigation bar at the bottom contains links for "v1.2", "Main", "Help", "Database Administration", "Refresh Data", and "Signout MUGERIAN".



A screenshot of a dropdown menu on the Stockbook website. The menu is open, showing a search input field and a "CLOSE X" button. The text "the dropdown list." is visible above the input field.



View Reports

Inventory

List of all parts in alphabetical order

Manufacturer

List of all manufacturer in alphabetical order

Reorder

List of parts that have dropped below the user defined “Minimum Level”

Location

List of all parts “by location”. Useful for performing an inventory of items



View Reports

The image displays a multi-windowed Firefox browser environment. The primary window shows the 'Stockbook' application interface. At the top, the title 'Stockbook' is prominently displayed in orange. Below the title, there is a search bar with a 'Quick Search' input field and a 'Go' button, followed by a link to 'Advanced Search'. A navigation bar contains buttons for 'Manage Inventory', 'Print Labels', and 'View Reports'. The 'View Reports' button is currently selected, leading to a sub-menu with options: 'Inventory', 'Manufacturers', 'Reorder', and 'Location'. The 'Inventory' option is active, showing a hierarchical tree view of the inventory structure. The tree starts with 'NSCL' and branches into '142-B', 'Control Room', 'Roof', and 'Room 142'. 'Room 142' further branches into 'Cabinet 2', 'Cabinet 1', and 'Cabinet 3'. 'Cabinet 3' contains 'Shelf 1', which lists 'Bin 1', 'Bin 2', 'Bin 3', and 'Bin 4'. Below the bins, there is a section for 'Bars and Body Modified Beam Stops (1)' with sub-items 'Shelf 2', 'Shelf 3', 'Shelf 4', 'Shelf 5', and 'Shelf 6'. The final item in the tree is 'Shelving Unit 1' and 'Room 180N'. The bottom of the application window features a blue footer with navigation links: 'Main', 'Help', 'Database Administration', 'Refresh Data', and 'Signout MUGERIAN'. The version number 'v1.2' is visible in the bottom left corner of the application window.



Wireless Handheld (Motorola MC55)

Provides “point of use” search of Database

Syncs with Database when cradled

Decreases time to find and check-out items

Ruggedized for industrial use

Located Outside both Cyclotron Vaults



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Future

Matrix for determining “minimum on-hand” before reorder

UPC Labels at Point of Use

Use by other department

Link to Maintenance Guidelines

Installed function: Where and when was a part installed

Map of the locations



Questions



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