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National Lab Day

Lectures

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10-8-2019

### High Energy & Nuclear Physics

Gene Van Buren

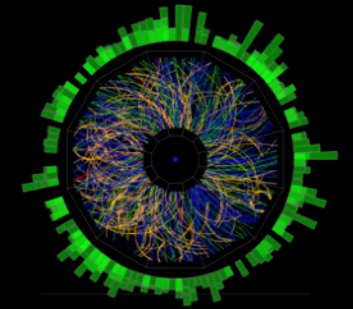
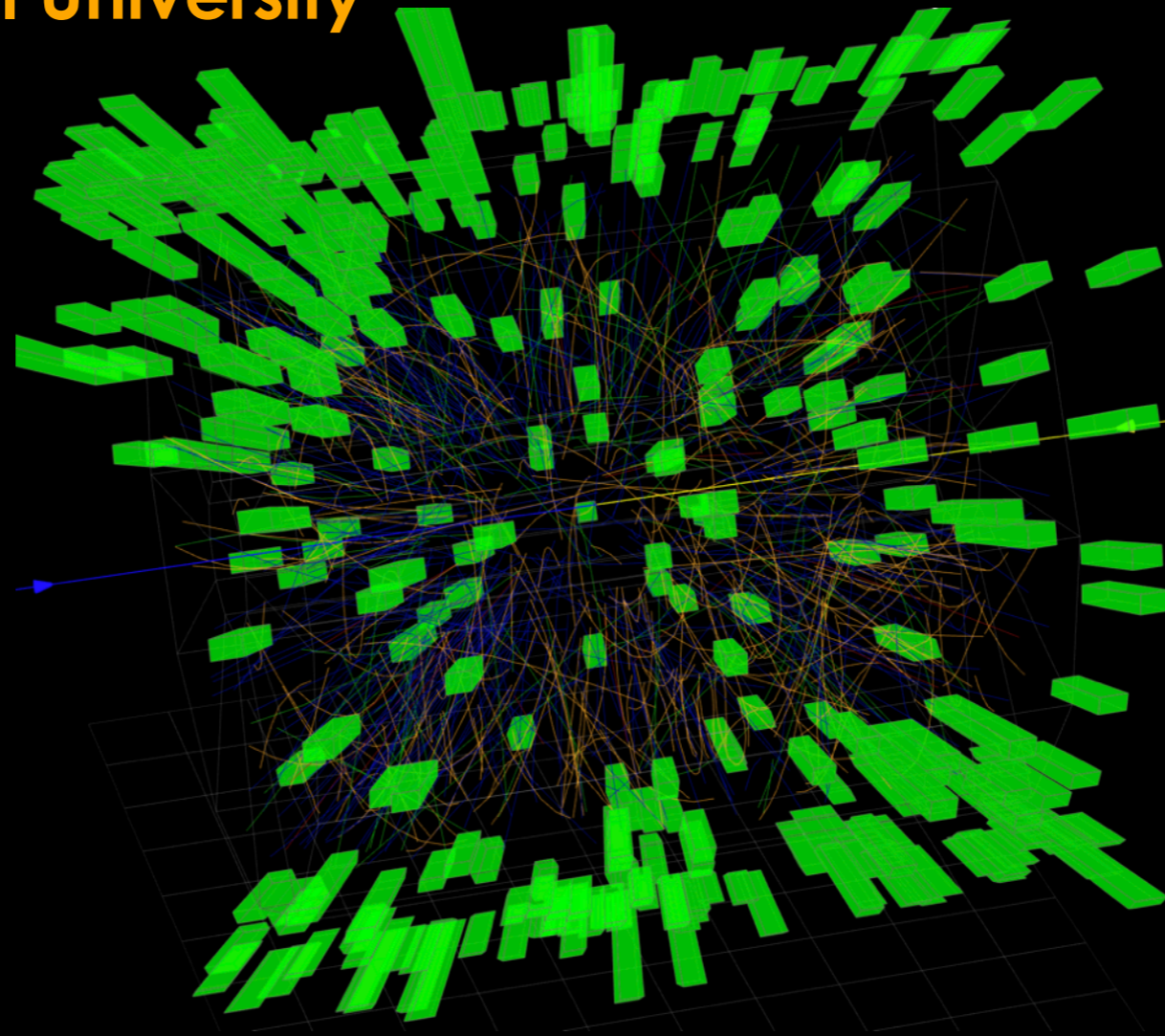
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National Lab Day

Montana Technological University

October 2019



GENE VAN BUREN - RESEARCH SCIENTIST (RHIC)  
BROOKHAVEN NATIONAL LABORATORY

# HIGH ENERGY & NUCLEAR PHYSICS



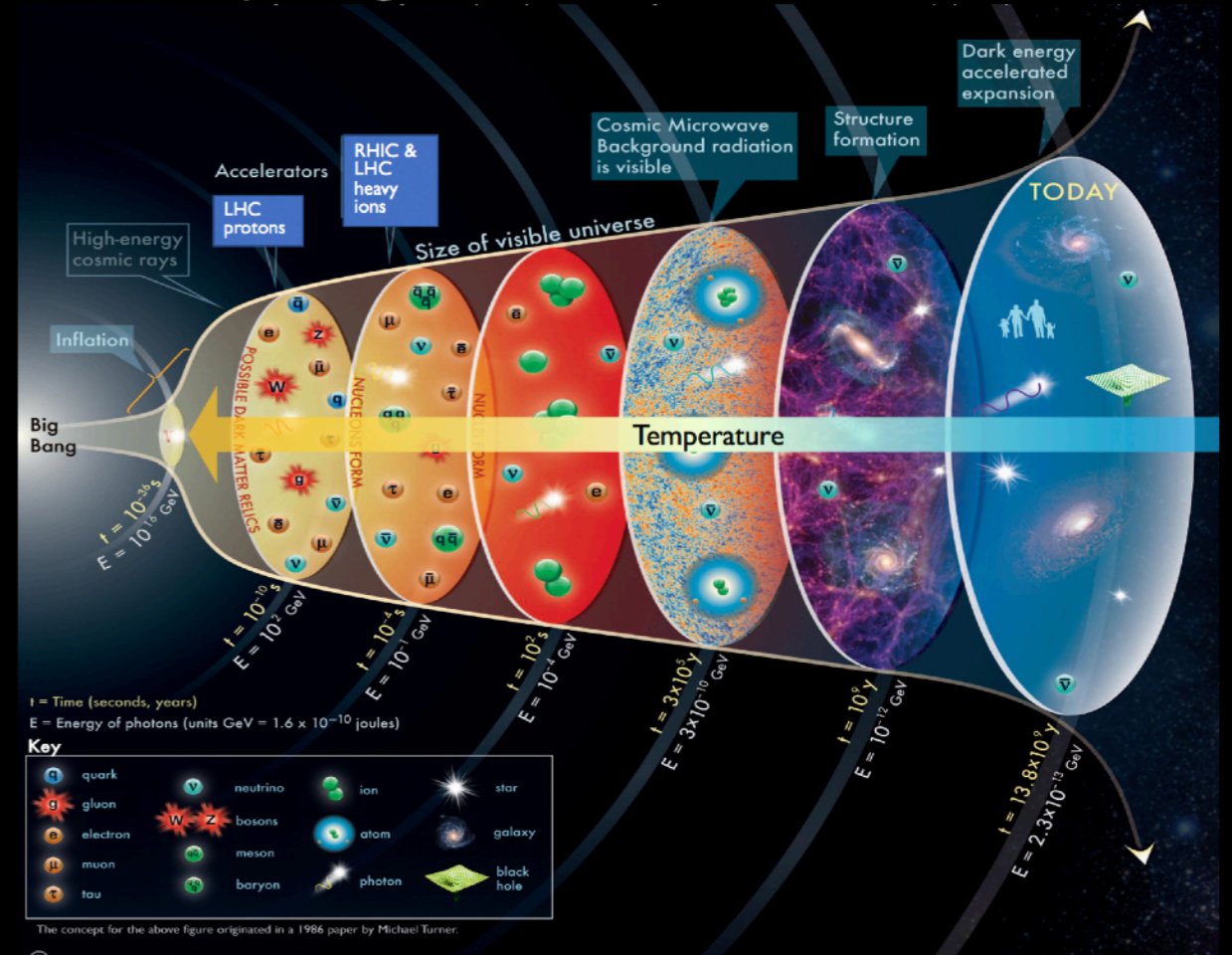
U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

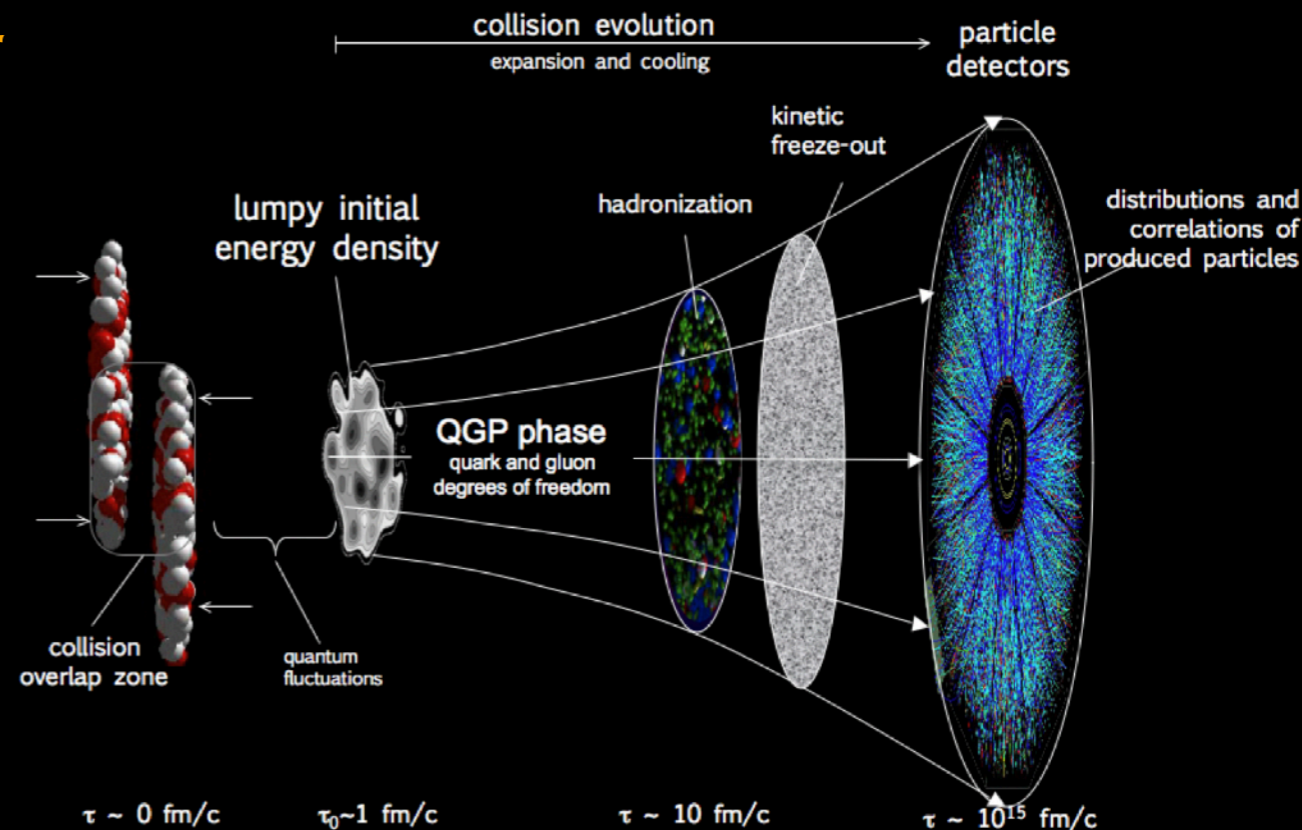
# SCIENCE MISSION

- **MOST FUNDAMENTAL UNDERSTANDING OF NATURE**
- **NECESSARY TO UNDERSTAND HISTORY & FUTURE OF THE UNIVERSE**
- **TOOLS OF TOMORROW**
- **EDUCATING TODAY**

## Exploring matter at the Dawn of Time



## Nuclear collisions and the QGP expansion

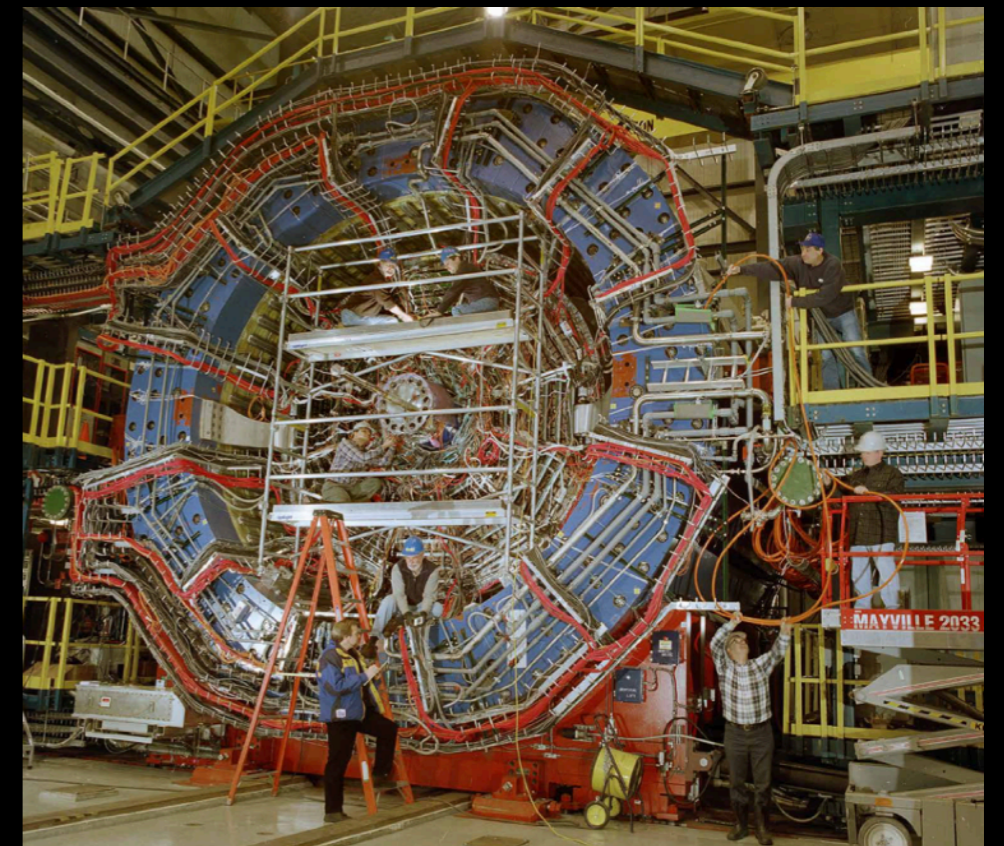




# ENABLING TECHNOLOGIES

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- *R&D PARTNERSHIPS WITH INDUSTRY*
- *DEVELOP SKILLS BEYOND SCIENCE*
- *REACTORS*
- *ACCELERATORS*
- *DETECTORS*
- *COMPUTING*

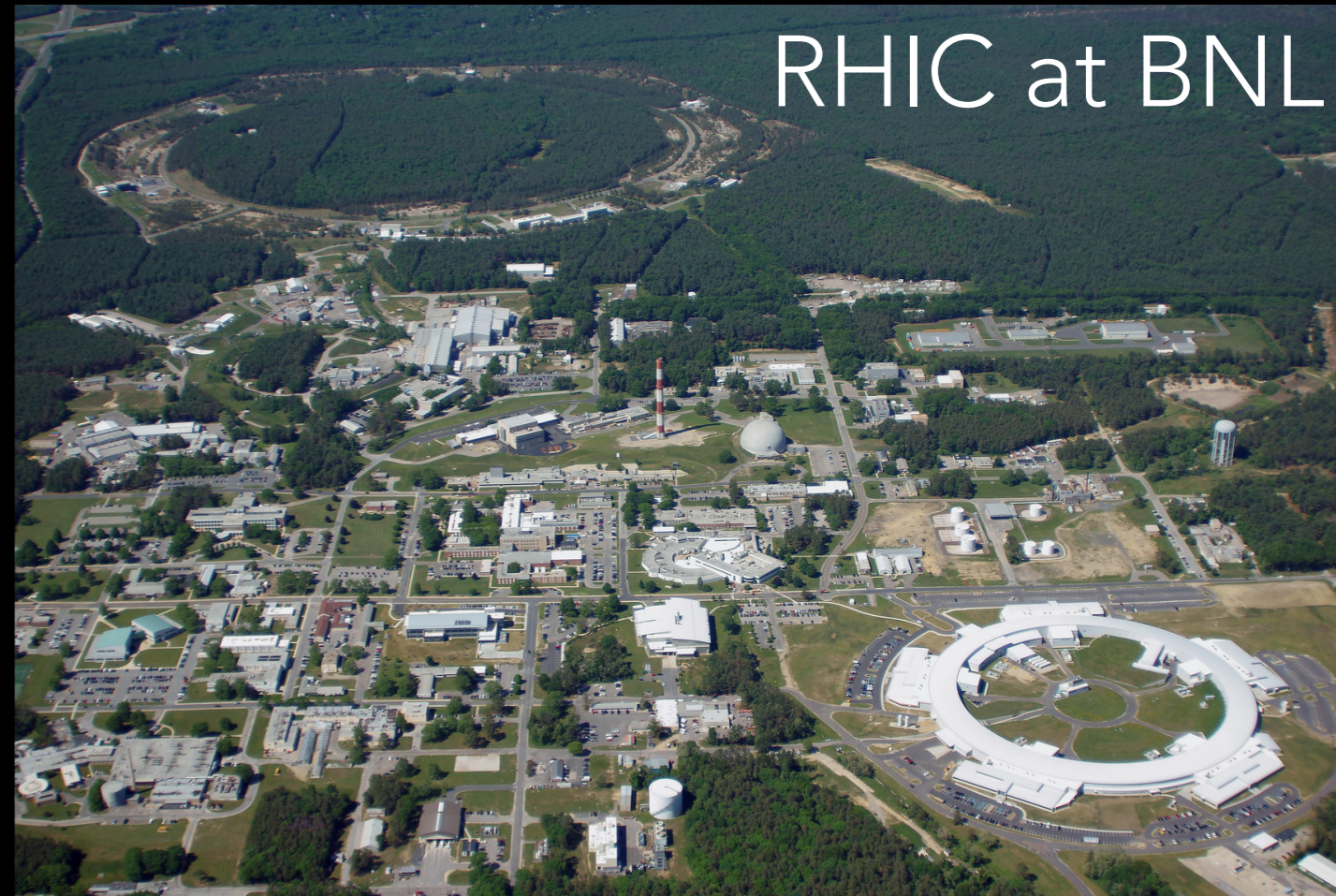




# NATIONAL LABORATORIES

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- *FACILITY HOSTS (E.G. BNL, FNAL, JLAB, ORNL,...)*
- *COLLABORATORS (E.G. ANL, LANL, LBNL, LLNL,...)*



RHIC at BNL



SNS at ORNL





# UNIVERSITY PARTICIPATION

- **INTERNATIONAL COLLABORATIONS FOR BIG SCIENCE**
- **FROM SMALL COLLEGES TO HUGE**
- **FACULTY & STAFF RESEARCHERS**
- **GRADUATE STUDENTS**
- **INTERNS**

