Bringing the LHC and ATLAS to a regional planetarium

Reinhard Schwienhorst

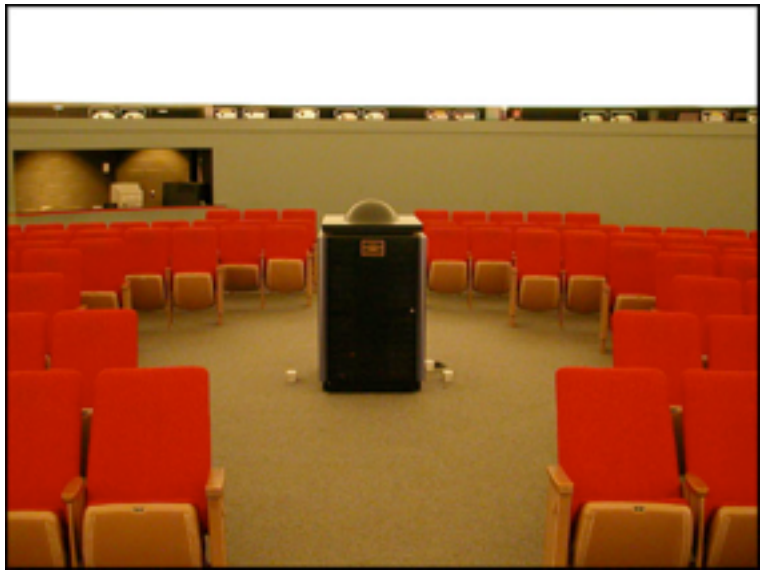
MICHIGAN STATE UNIVERSITY

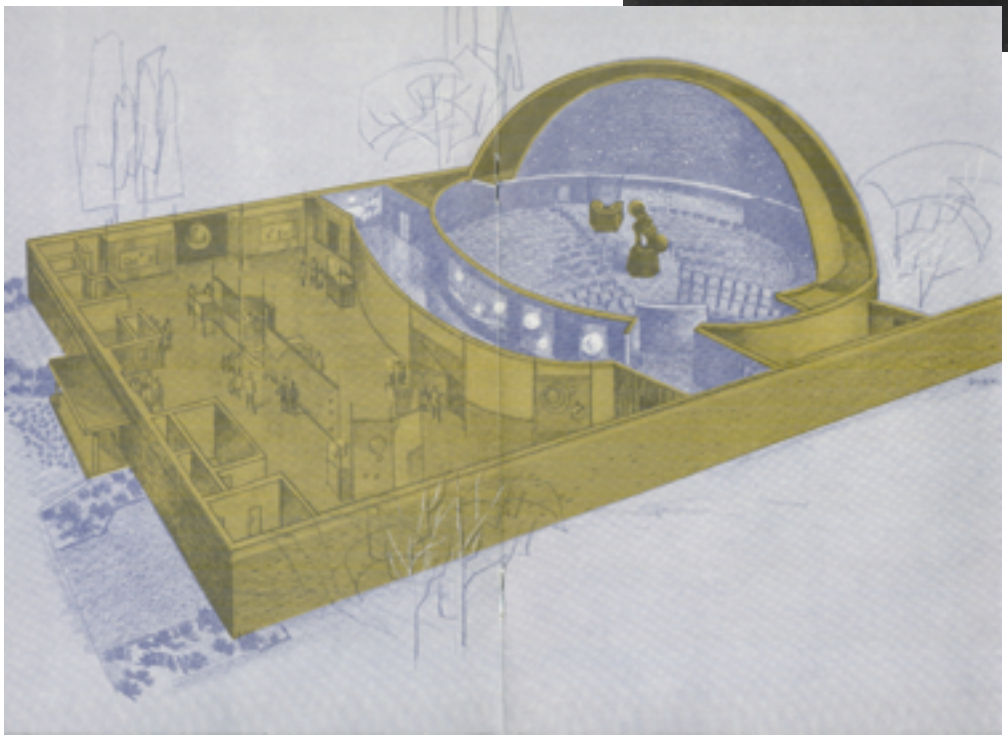
Planetarium outreach project

- Outreach component of NSF CAREER grant PHY 0952729
  - Bring ATLAS, LHC, HEP to a regional planetarium
  - In close cooperation with Abrams Planetarium at MSU
- Production of a 5-minute planetarium clip in Spring 2011
  - Plays at the end of each public show

Abrams planetarium at MSU

- Built in 1964
- 50 feet dome
- 150 seats





Digistar II projection system

- Digistar 2 projection system
  - B/W vector graphics
  - In addition to several projectors
    - Front video projector
    - 3 slide projectors
    - All-sky projectors
    - Panorama projectors

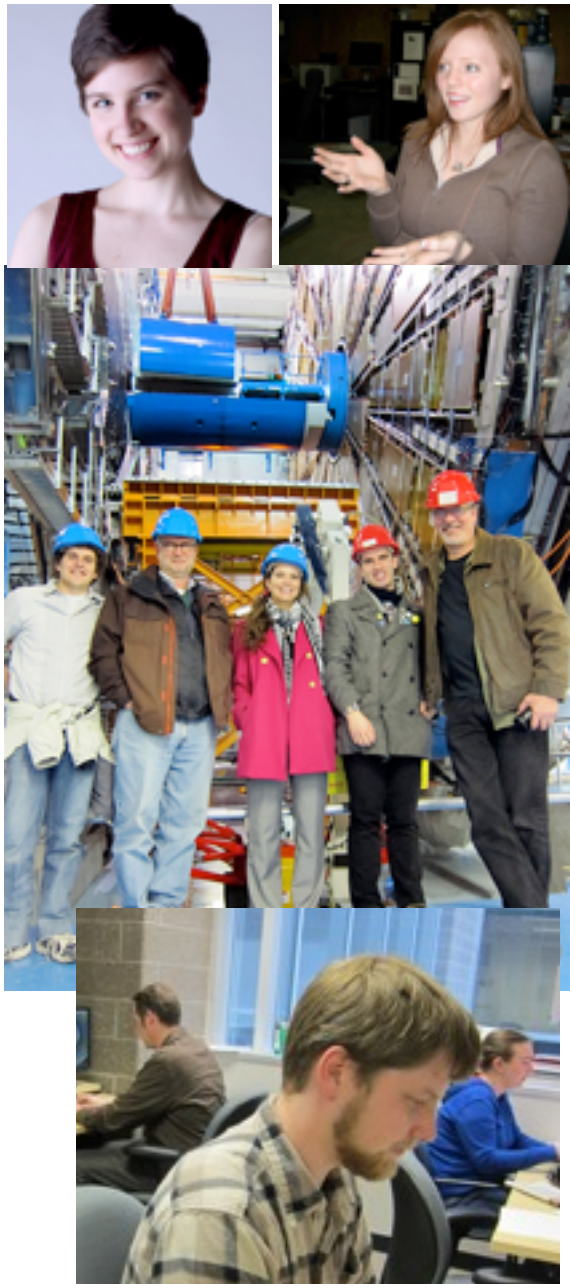
Designed and produced by MSU students

- 2 undergraduate graphic designer

- 3 undergraduate animators
  - Recruited with help from CommArts professor
  - Communication graphics program
  - 3D design and animation
- 2 undergraduate professional writers
  - Supported by one professor
  - With feedback from everyone involved in the project
- 1 undergraduate music writer/producer/artist

- 1 graduate, 1 undergraduate physics student

- With support from experts:
  - Professional writing professor
  - Communication graphics and design professor
  - Planetarium show developer



Planetarium content development

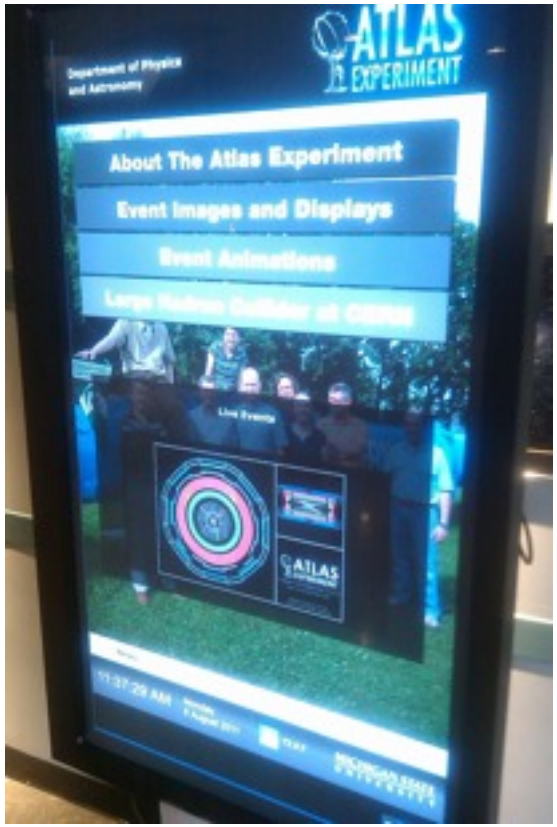
- Goal: design short show modules
  - About particle physics in general
  - About the LHC
  - About ATLAS in particular
  - Connection to astronomy
- Variety of image/animation formats
  - Full-dome animations using Digistar projector
  - Animations using 3D design to show on the front video projector
  - Series of slides to show on individual projectors
  - All-sky images and panorama images to show on the entire dome
  - Mixing all of the above
- Sound - music, narration, sound effects
- Develop original content as much as possible


Example Allsky image

Planetarium all-sky

Touch-screen display

- 2 Dynics LCD touch screens
  - 1 located in Planetarium lobby
  - 1 located in PA atrium
- Content:
  - ATLAS images and animations
  - live event displays
- Content can be modified or expanded by user
- Goal: integrate images/animations that are being developed for planetarium show
  - Update as needed



Summary

- Planetarium clip on particle physics, LHC, ATLAS
- Content development has successfully started
- First 5-minute clip produced
  - By a team of MSU undergraduates
  - Almost completely original content
- Content will also be used elsewhere
  - Interactive touch screen
  - For talks, web pages, facebook, etc