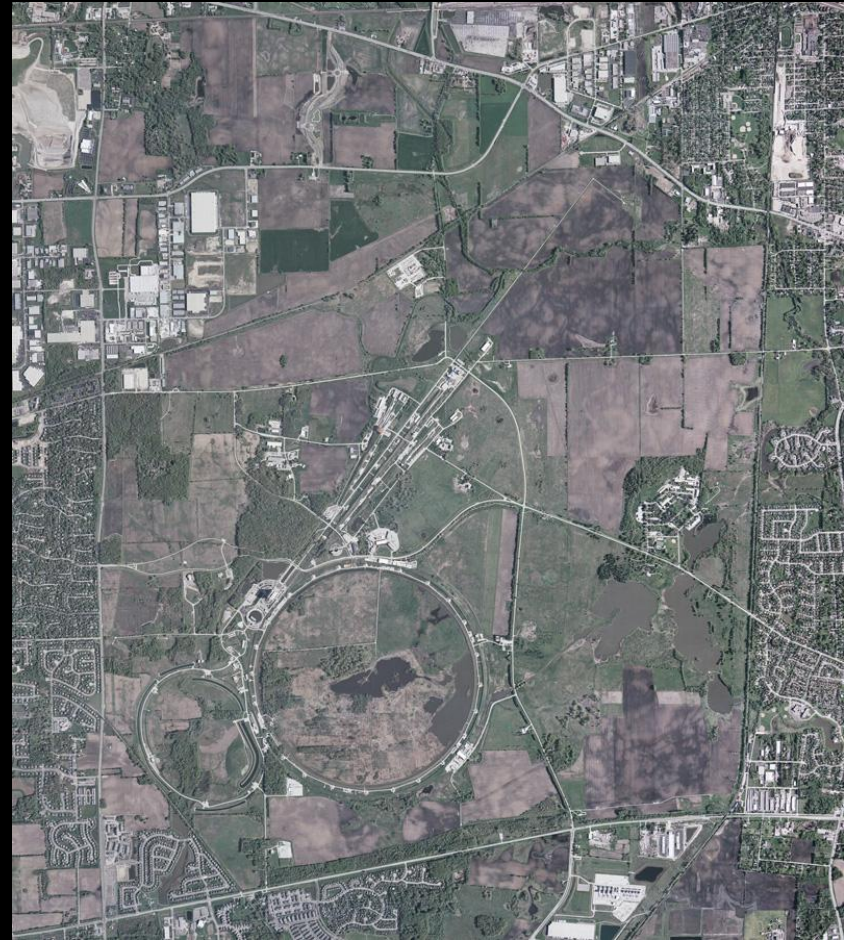


I PRO 303

Designing an Exhibit for Fermilab's Atrium

Introduction: **What is Fermilab?**

- Home of high energy physics.
- 6800 acre site, world's most powerful accelerator.
- Gain knowledge of nature at all scales.



Introduction: **What is the ILC?**

- International Linear Collider
- ~20 miles long, multibillion dollar
- Next generation of technology, will become most powerful in the world

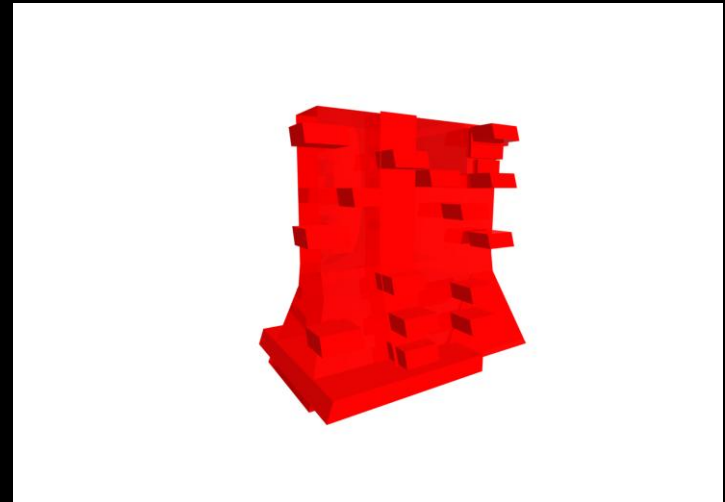
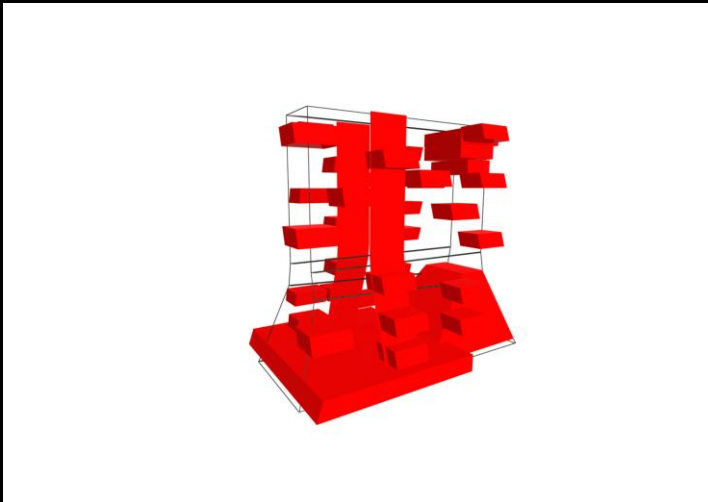
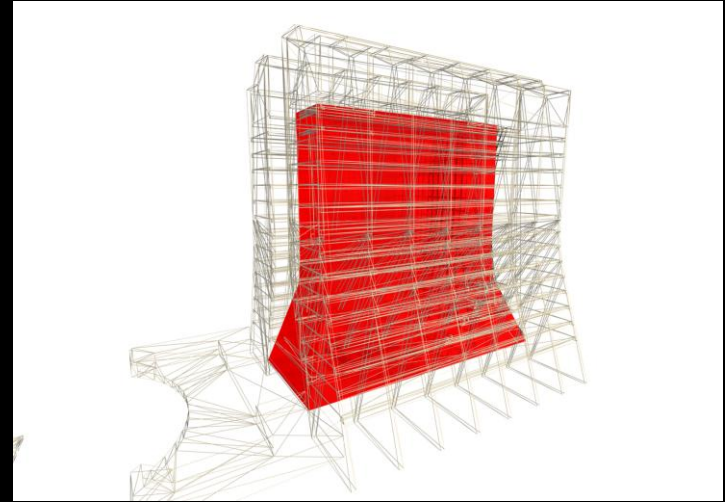
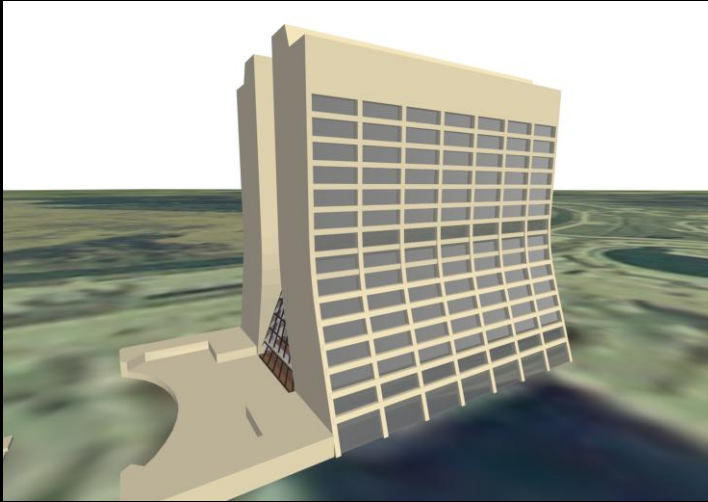
Introduction: **The Future**

- DOE/NSF support building the ILC in the US
- “...take steps to remain a world leader...”
- “...highest priority of the U.S. program...”
- Fermilab likely host institution

Introduction: **The Challenge**

- Events being planned for leaders to take place at Fermi.
- Develop an installation to host such gatherings.
- An art exhibit conveying the science taking place at Fermi.
- Appealing to scientific, and lay audiences alike.
- Convey scale, and importance of the work taking place.

Introduction: **Wilson Hall**



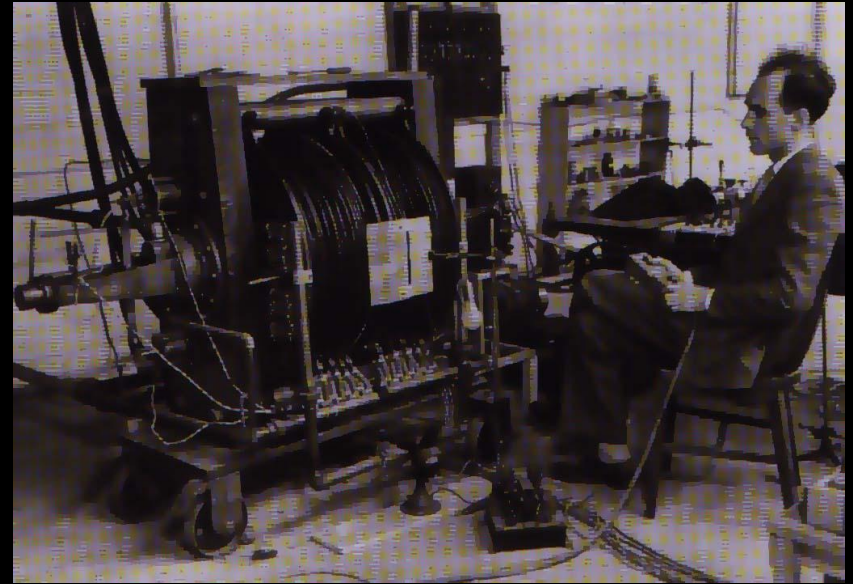
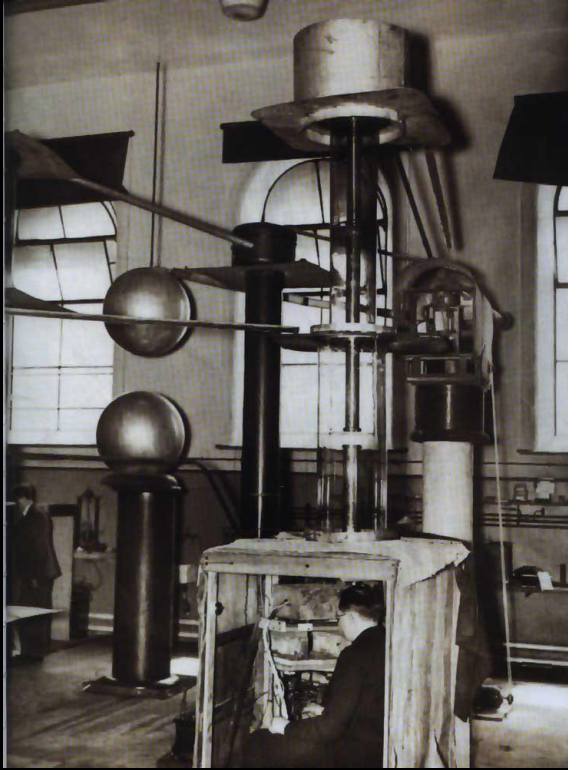
Introduction: **Wilson Hall Atrium**



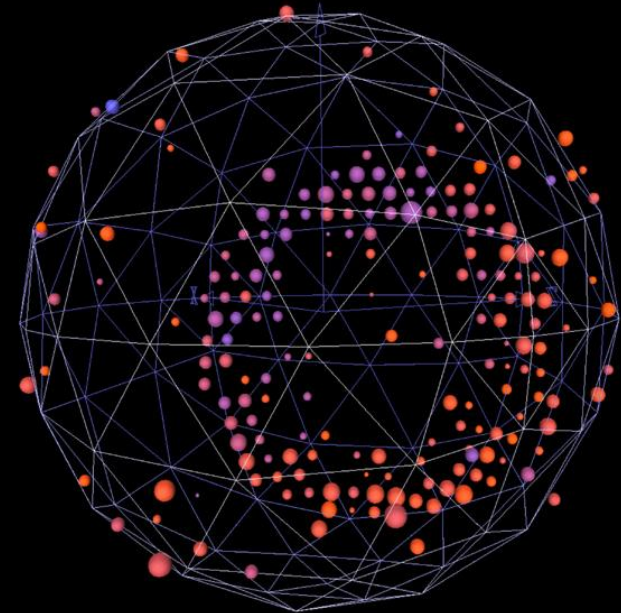
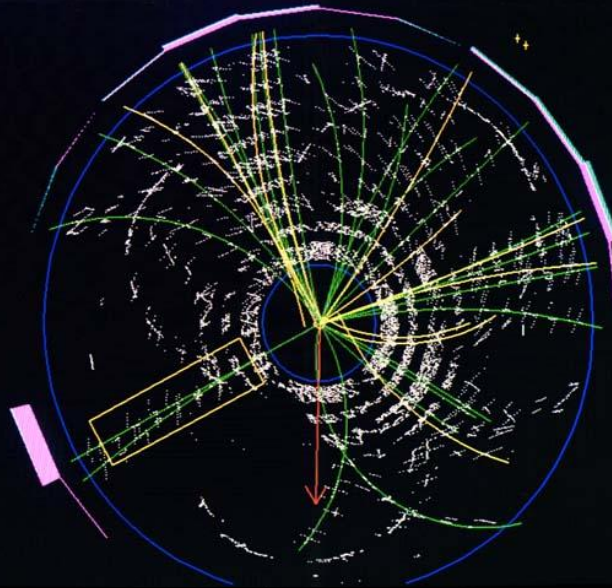
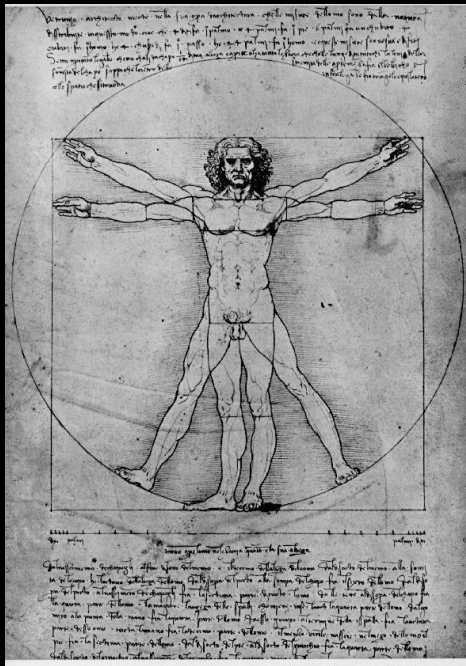
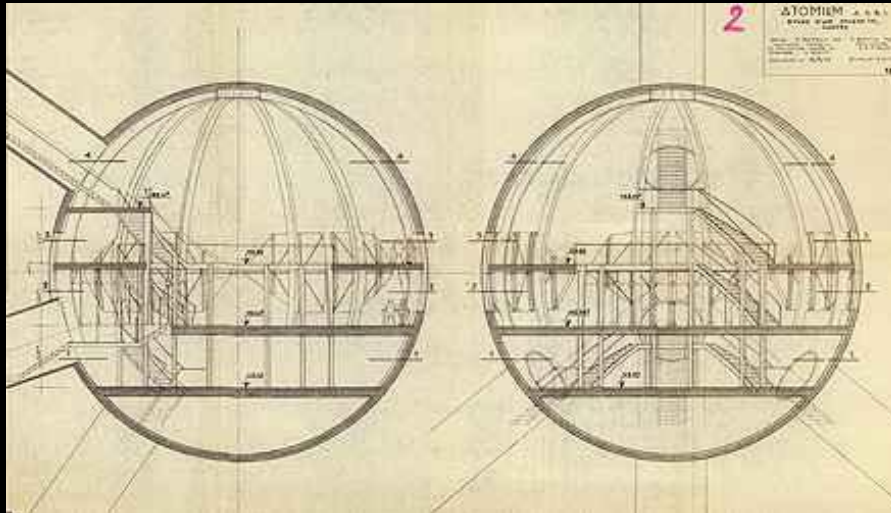
Introduction: **Teamwork**

- Interdisciplinary
 - Architecture
 - Engineering
 - Political Science
 - Physics
- Leadership
- Dynamic Subteam Structure
- Ability to generate research and proposals

Introduction: **Research**



Introduction: Research



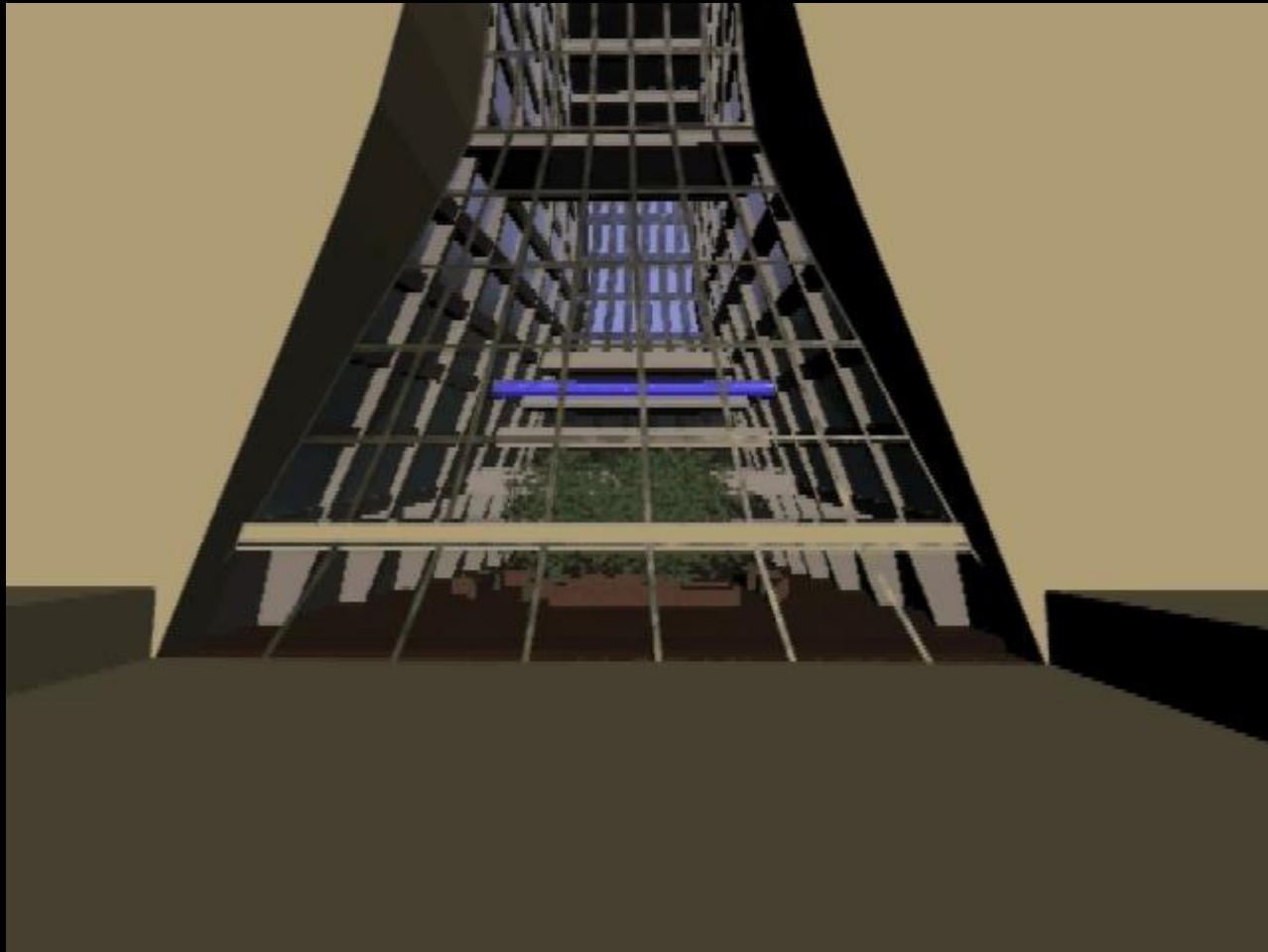
Confluence: [Introduction](#)

- Themes: Duality, Opposites, Annihilation
- Goal: Make visible the collision and annihilation that is the heart of the physics at Fermilab.

Confluence: **Design**

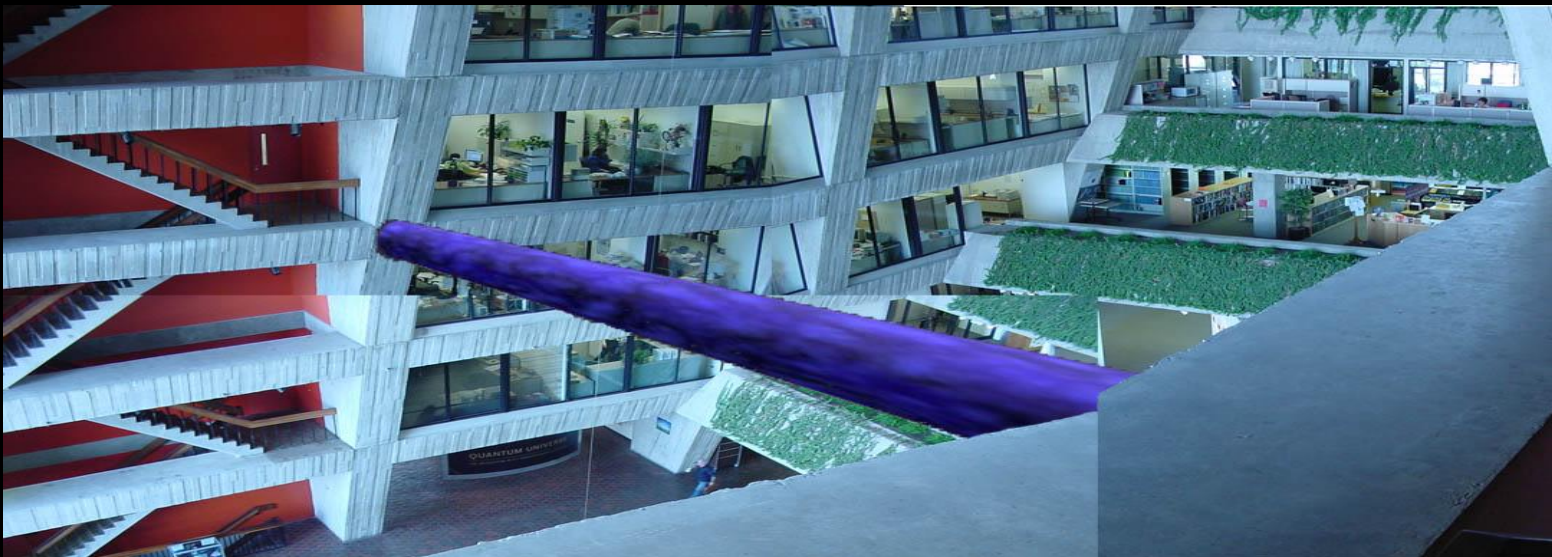
- Implementation: A tube filled with rheoscopic fluid, stirred in opposite directions at the ends, whose currents cancel in the center.
- Designed to symbolize the collision of matter and antimatter in the colliders at Fermi with the annihilation of oppositely rotating currents.

Confluence: **Fly-Through**



Confluence: Implementations

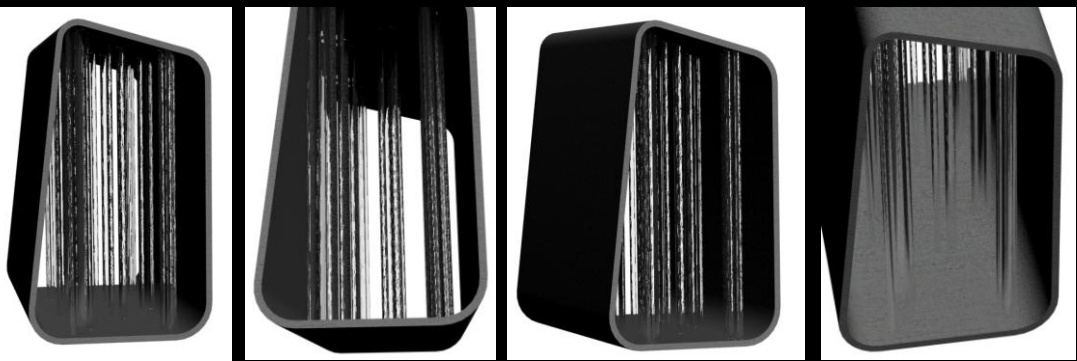
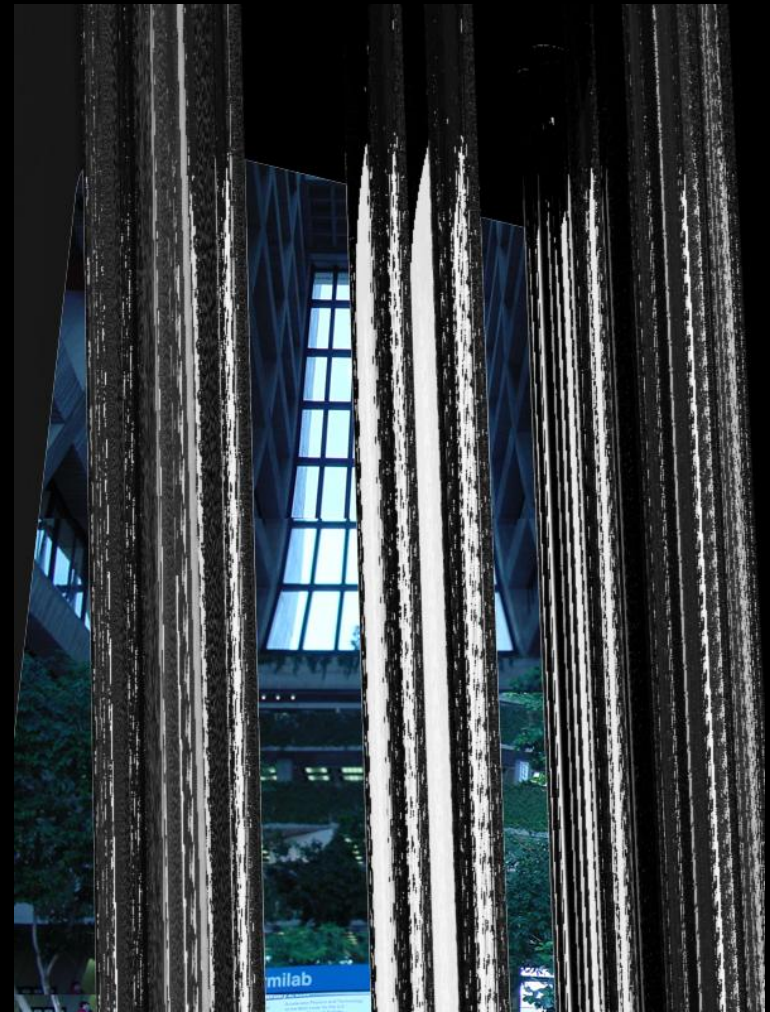
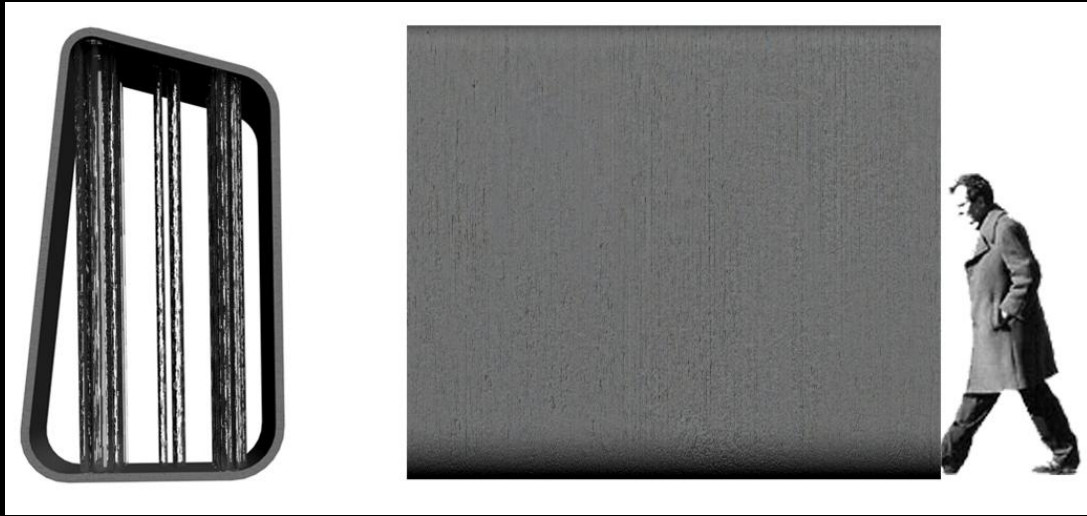
- Numerous designs available
- Immensely scalable design



Confluence: Implementations

- Implementation: Multiple tubes arranged in a passage.
- Collision symbol brought to human scale in an intimate enclosed environment.

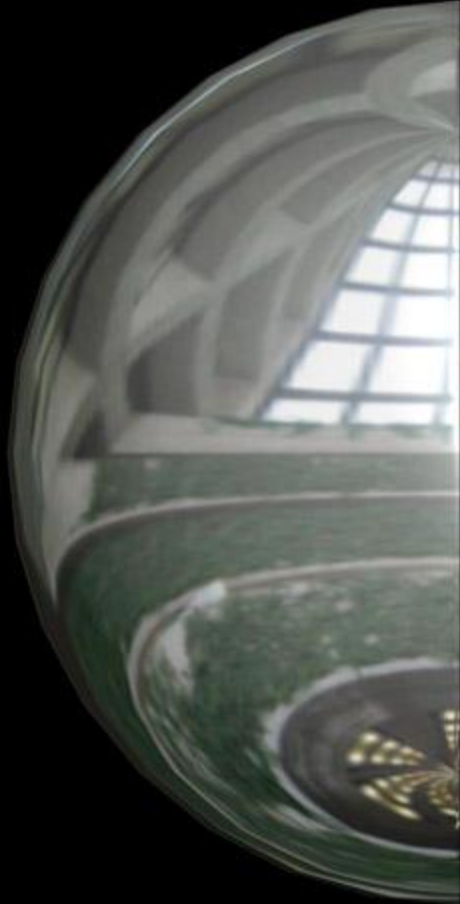
Confluence: Implementations



Confluence: [Implementations](#)



Confluence: [Implementations](#)



Confluence: [Implementations](#)



Confluence: Implementations



Confluence: Implementations



Interstitium

A space between things or parts, especially a space between things closely set...

To stand still in the middle of something...

The matrix or supporting tissue of an organ.

Interstitialium: **Goals**

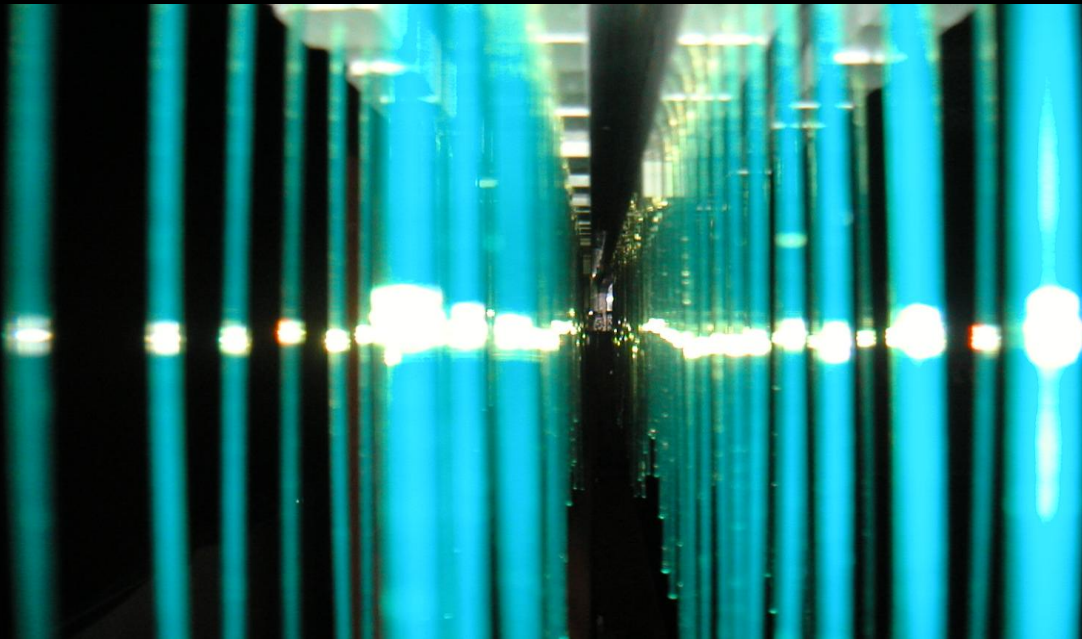
- Visible Detection: **at what scale**
- Visible Scale: **20 miles, linearly**
- Network of reflecting/bouncing lines
- Ability to trace any point's path back to an origin

Interstitial: **Abstract Model**



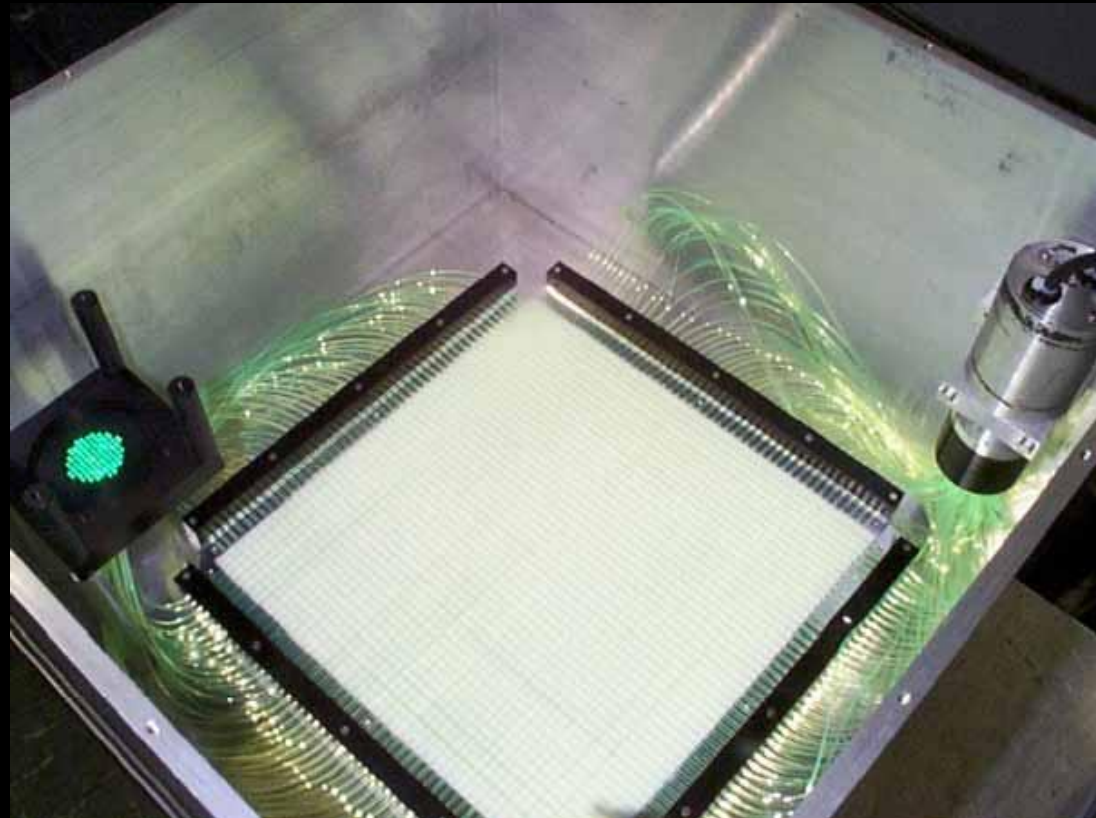
Interstitial: **Wave Changing Fiber**

- Similar to fiber optics, but there is no need for a specific light source
- Multi-colored light emitted and ends glow
- Responsive to UV light, so usage of blacklights are considered for an additional dynamic to the installation

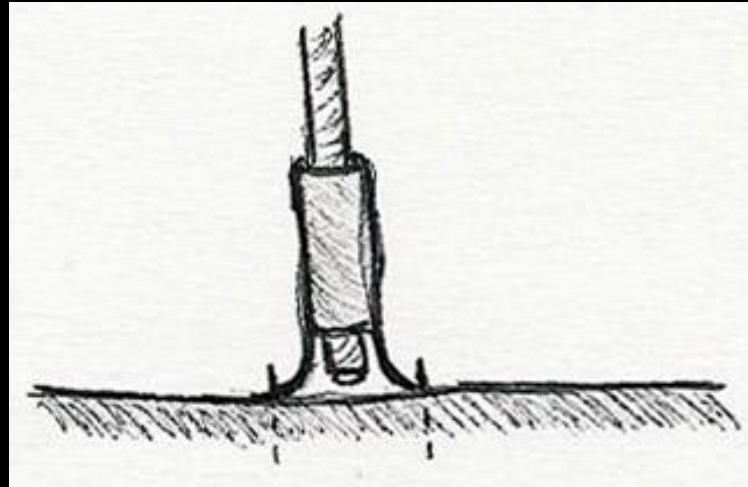
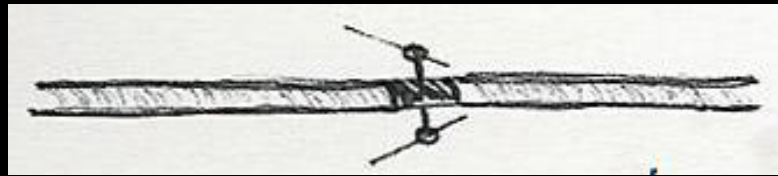


Interstitium: **Wave Changing Fiber**

- Applications to science
- Usage in particle physics and accelerators already



Interstitium: **Connection Details**



Interstitium: **Mock Up**



Interstitium: **Mock Up, Close**



Interstitium: **Up Into the Atrium**



Interstitial: **Down Into the Atrium**

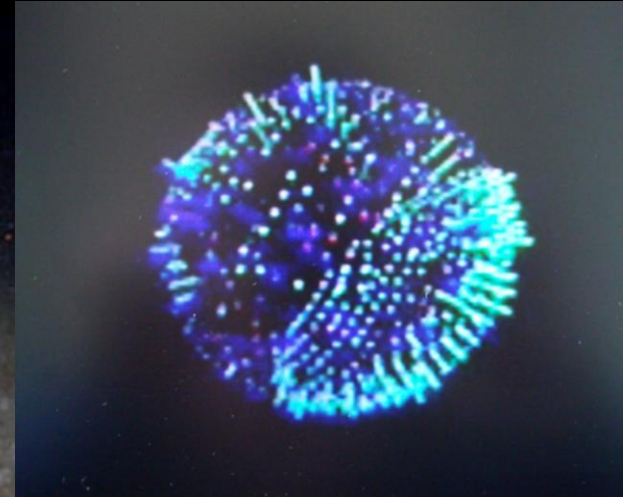


Interstitium: **Night View**



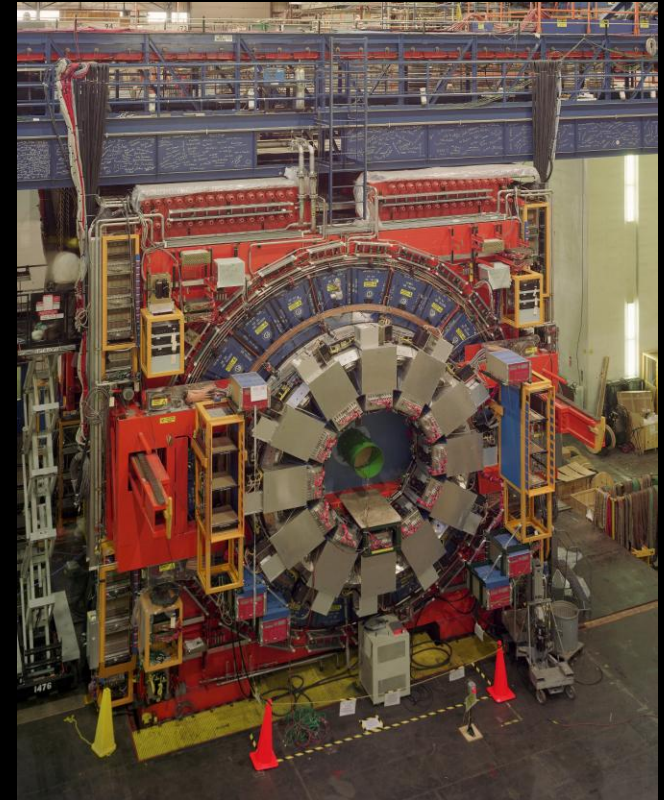
The Visible Collision: **Motivation**

- Particle science is invisible to the human eye
- But the impact of science this small is huge



The Visible Collision: **Questions**

- Why collisions?
- How do you create an exhibit that expresses this idea?

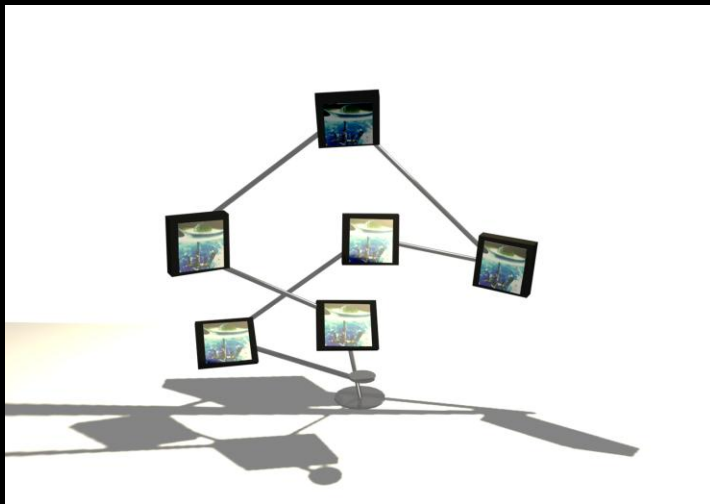


The Visible Collision: **Film**

- Everyday objects collide at a human scale
- Plan for filming set
- Prototype film shoot

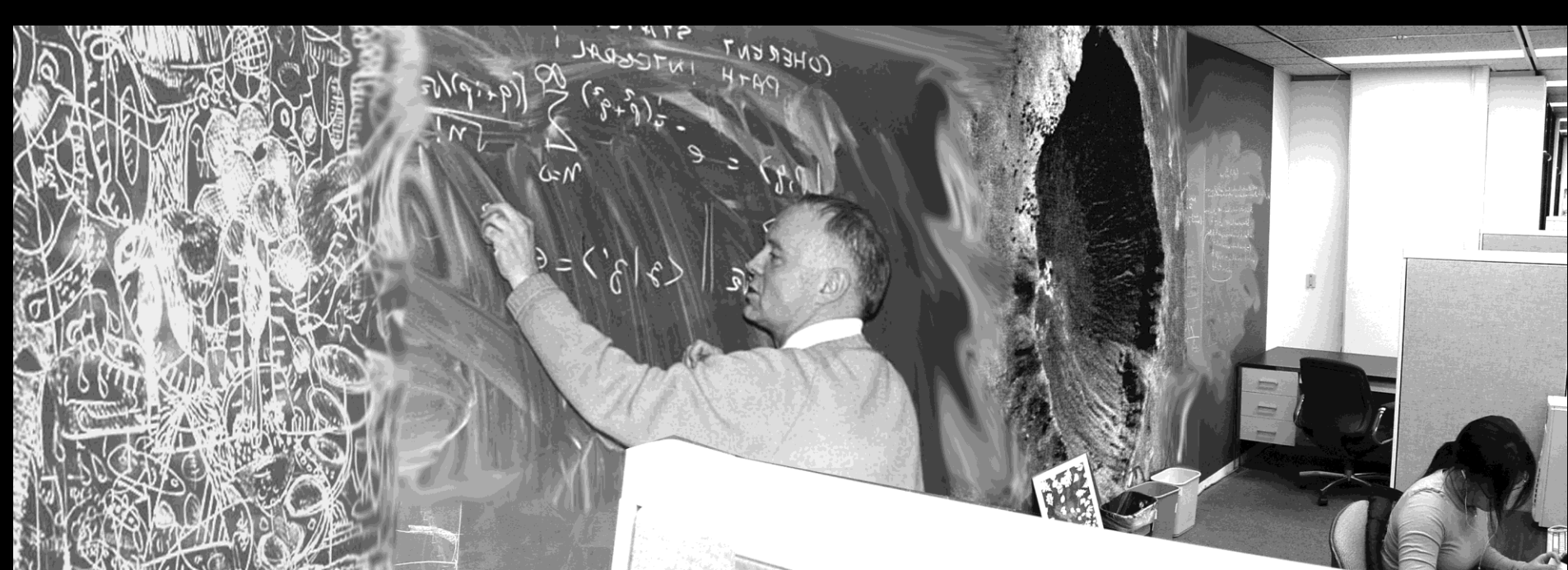


The Visible Collision: **Kiosks**

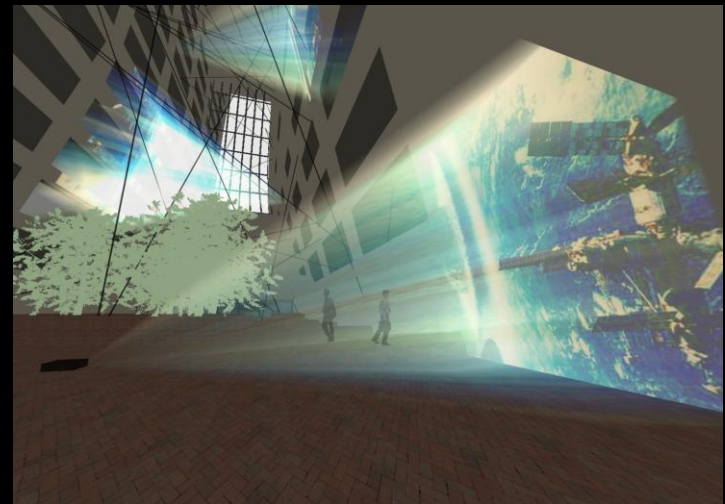
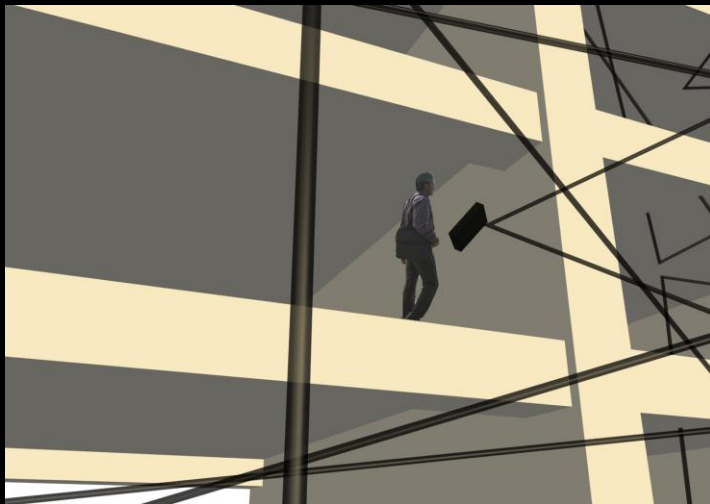
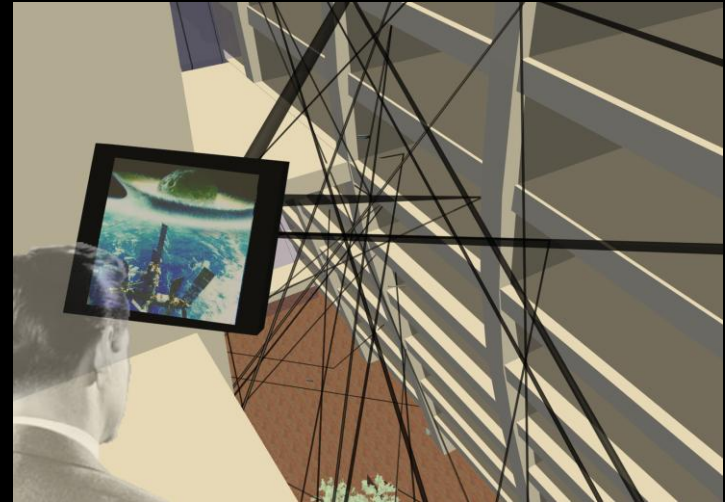
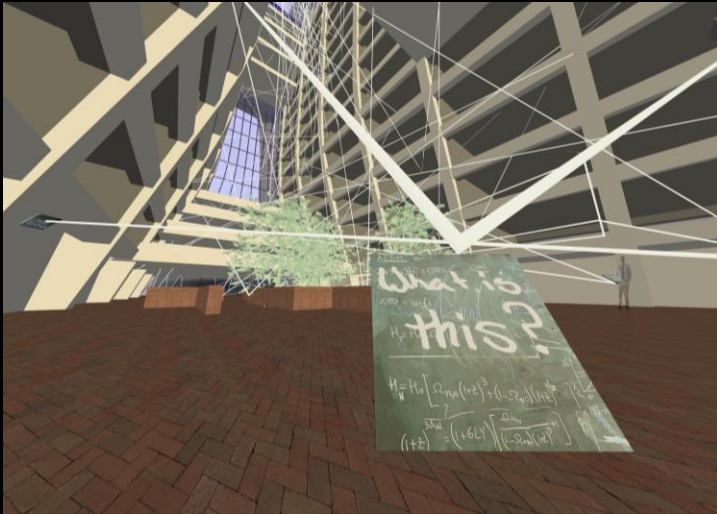


The Visible Collision: **Users**

- Interface
- Response



The Visible Collision: **Interaction**



Challenges Overcome

- Very few design restrictions
- Physically modeling the atrium space
- Sticking to the project goals
- New Venture into Art

Future Work

- Meet with Fermilab team to pitch design ideas
- Write proposals to fund the installation
- Consult on the installation project

Thank You

- Confluence
- Interstitium
- The Visible Collision

