

ATLAS Outreach & Education

PROJECTS OF INTEREST TO DISCOVER THE COSMOS

ATLAS Outreach Goals

- ⦿ **Public Appreciation of the Scientific Goals and Achievements of ATLAS and HEP**
 - Targets: Members of Media, General Public
- ⦿ **Sustained Support for ATLAS, the LHC and Particle Physics Research**
 - Targets: Decision Makers and Opinion Formers from Member States, Members of Industry
- ⦿ **Attract and Retain the Next Generation of Scientists and Science Educators**
 - Targets: Teachers and Students

Projects of Interest to Cosmos

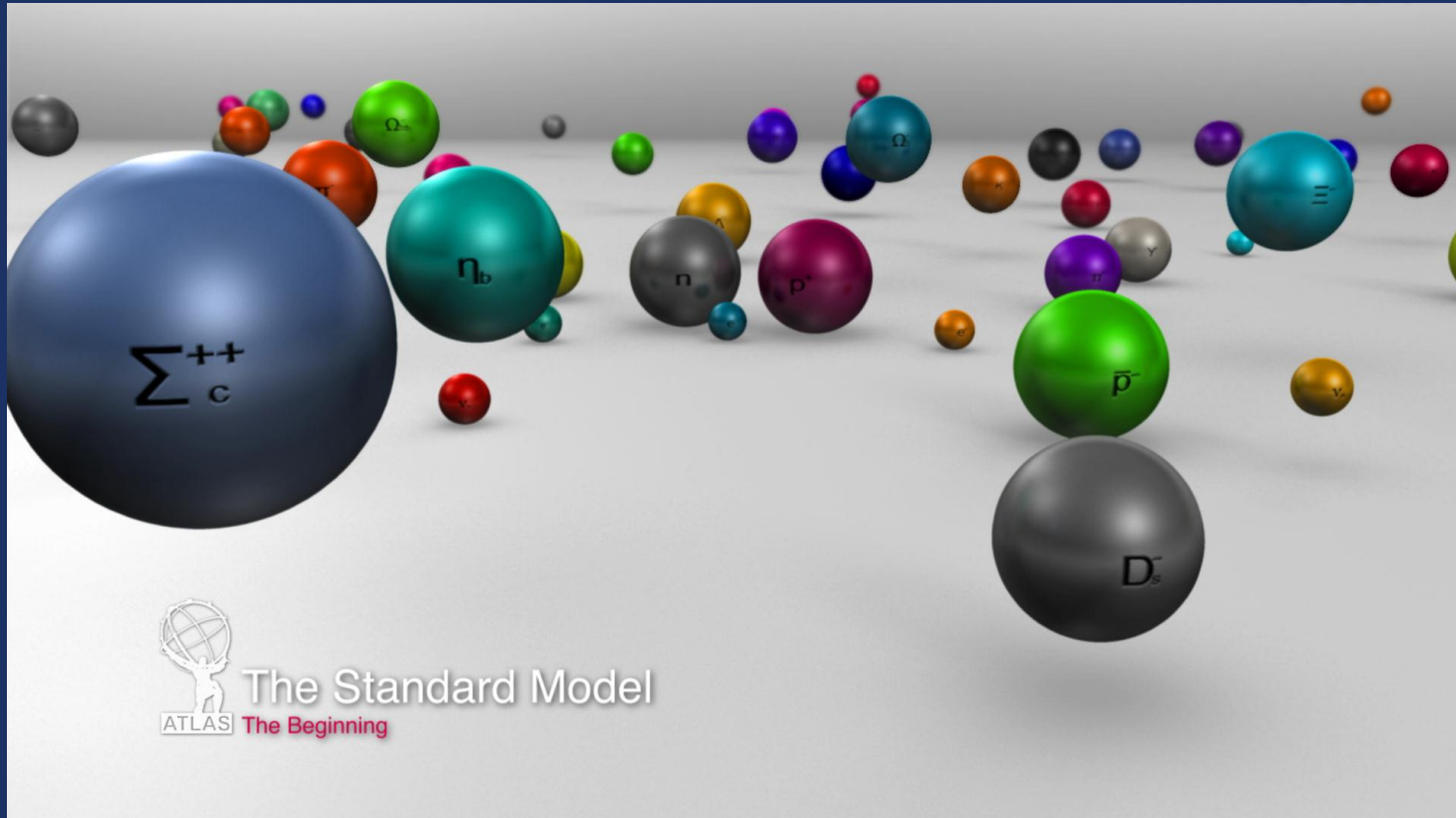
News and Educational Material on atlas.ch

The screenshot shows the ATLAS Experiment website with the following content:

- Navigation:** Home, Info, Multimedia, Store, Blogs, Links, Tour of ATLAS, Contact, Collaboration Site, Press, Student/Teachers.
- News Section:**
 - Article: "New ATLAS results at Lepton Photon symposium 2011".
 - Text: "ATLAS advances in the search for the Higgs and New Physics".
 - Text: "ATLAS blog / twitter - Live from Lepton Photon symposium 2011".
 - Text: "ATLAS scientific conference note on Higgs".
 - Text: "Webcast of LP11 talks in Mumbai (Live during sessions only)".
- Plot:** A graph titled "ATLAS Preliminary CLs Limits" showing the 95% CL limit on σ/σ_{SM} versus m_H [GeV]. The plot includes observed (black line) and expected (green shaded area) sensitivity, with $\pm 1\sigma$ and $\pm 2\sigma$ regions. Parameters: $L_{int} = 1.0-2.3 \text{ fb}^{-1}$, $\sqrt{s} = 7 \text{ TeV}$.
- ATLAS RUN STATUS:** Luminosity 2010-11: Max. = $2.37 \cdot 10^{33}$, Total = 2.990 fb^{-1} . Status: INACTIVE. Buttons for PROTON RUN, HEAVY ION RUN, LIVE EVENTS, LATEST LHC RUNS, STATUS, PLANS, IMAGES, VIDEOS, MURAL.
- ATLAS Science:** Discovery Quest, ATLAS eTours.
- About ATLAS:**
 - Section: "Mapping the Secrets of the Universe".
 - Text: "ATLAS is a particle physics experiment at the Large Hadron Collider at CERN. The ATLAS detector is searching for new discoveries in the head-on collisions of protons of extraordinarily high energy. ATLAS will learn about the basic forces that have shaped our Universe since the beginning of time and that will determine its fate. Among the possible unknowns are the origin of mass, extra dimensions of space, unification of fundamental forces, and evidence for dark matter candidates in the Universe."
 - List of questions:
 - What is the schedule of ATLAS?
 - Who are the 3000 physicists in ATLAS?
 - What is the LHC?
 - How big is ATLAS?
 - How much data will be recorded?
 - Why is there so much excitement?
- Images/Videos:** "ATLAS Image 2-1: View of the ATLAS cavern side A beginning of February 2008, before lowering of the Muon Small Wheels." Includes a YouTube icon.
- ATLAS Store:** Button at the bottom of the image section.

Projects of Interest to Cosmos

- ⦿ Educational Multimedia Material on atlas.ch
 - Example: Standard Model Animation



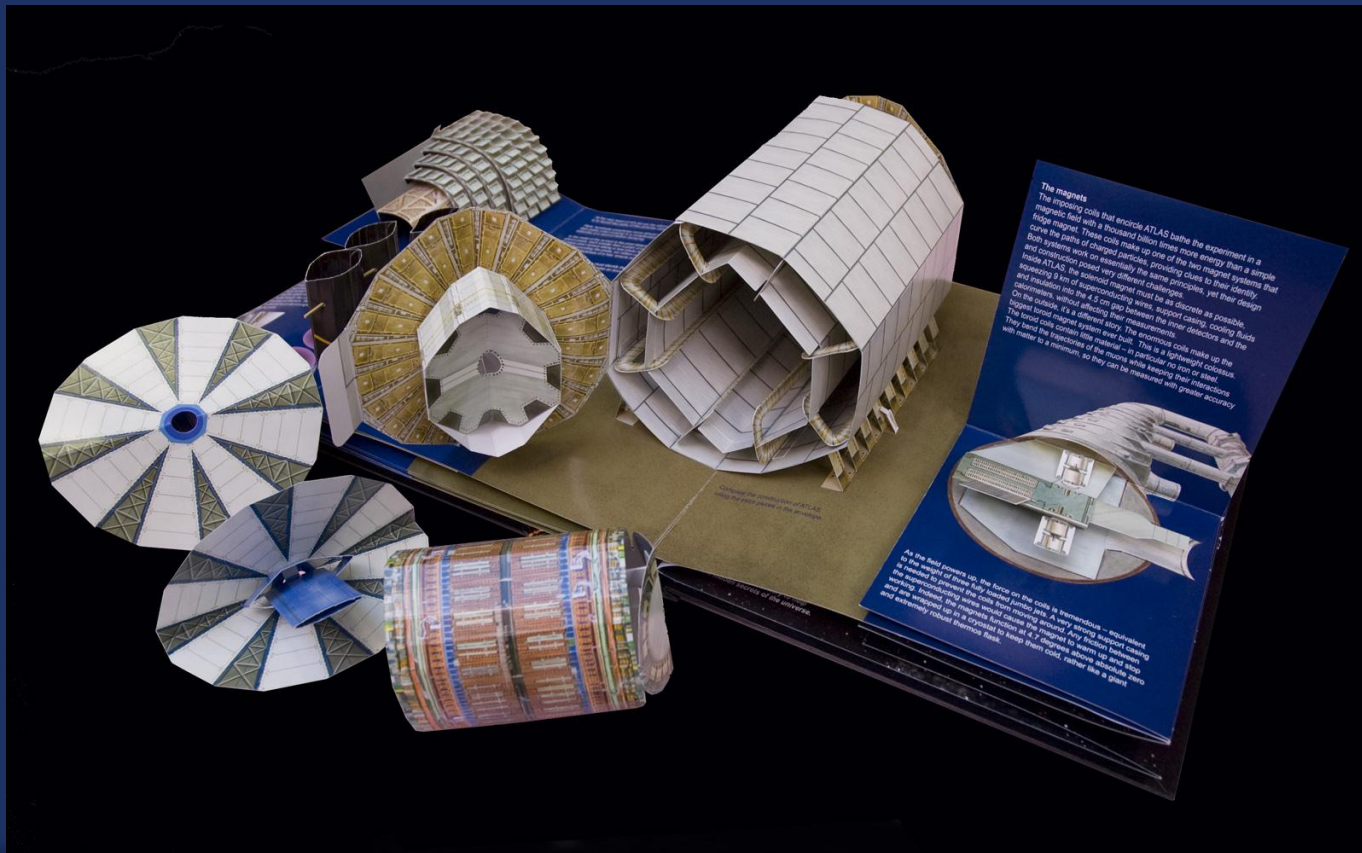
Projects of Interest to Cosmos

- ◉ Educational Multimedia Material on atlas.ch
 - Example: ATLAS Boogie Music Video



Projects of Interest to Cosmos

- Educational Material in Print
 - Example: ATLAS Pop-Up Book




Projects of Interest to Cosmos


- ◉ Educational Material in Print
 - Example: ATLAS Travel Exhibit Kit

The ATLAS Experiment at CERN
Mapping the secrets of the Universe


ATLAS is a particle physics experiment at the Large Hadron Collider at CERN. The worldwide collaboration consists of 3000 physicists from 174 institutions in 38 countries (2010).




Inner Detector
Tracks and measures the momentum of charged particles.



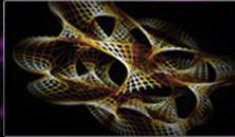
Calorimeters
Measure the energies carried by the particles.



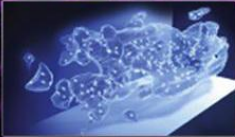
Muon System and Magnets
Identify and measure the momentum of muons.





Trigger, Data Acquisition and Computing
Selects events from an immense amount of data to be analysed by ATLAS physicists anywhere in the world.



The Unknown
ATLAS brings experimental physics into new territory. Most exciting is the completely unknown - new processes and particles that would change our understanding of energy and matter.
ATLAS will learn about the basic forces that have shaped our Universe since the beginning of time. Among the possible unknowns are: dark matter, extra dimensions of space and string theory.



What is the Origin of Mass?
Two of the greatest mysteries are how particles gain mass and how mass and energy are related.
To explain these mysteries, theories predict a new particle, the Higgs particle. If this particle exists, ATLAS will discover it and provide great insight into the origin of mass.



ATLAS EXPERIMENT
<http://atlas.ch>

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ATLAS Live Outreach Channel

The screenshot shows a web browser window displaying the ATLAS Live Public Outreach Channel. The browser's address bar shows the URL: <https://espace.cern.ch/atlas-collaborative-tools/atlas-live/public/default.aspx>. The page header includes the ATLAS LIVE logo and the text "Public Outreach". Below the header, there is a navigation menu with links: "ATLAS Home Page", "Collab Tool Service", "Meeting & Project Support", "ATLAS Live Video", "Remote Teaching Facility", and "Outreach Support". A search bar is also present. The main content area features a video player showing two individuals wearing white hard hats and safety glasses, looking at a complex piece of equipment. The video player has a progress bar and a timestamp of 19:11. To the right of the video player, there is a "Mobile" section with two smartphone icons: an iPhone and an Android. The page footer includes a "Recycle Bin" link and a "Site Actions" dropdown menu.

Projects of Interest to Cosmos

- ATLAS Virtual Visits
 - Connecting ATLAS to...



Projects of Interest to Cosmos

● ATLAS Virtual Visits

- Example: World Science Fair, New York City



Projects of Interest to Cosmos

⦿ ATLAS Virtual Visits

- Example: Marshfield High School, Coos Bay, Oregon



Projects of Interest to Cosmos

⦿ ATLAS Virtual Visits

“My students ... were excited ... because they talked to scientists on the other side of the world. They also asked questions about dark matter (triggered by Steve question). So, overall we kindle interest in science and this is really positive! Plus, they talk and joke about particles, this means they know what they are talking about.”

Christina (Teacher from William Floyd High School)

“Thanks Steve. It is a very neat opportunity for our students. I appreciate you providing the window. Jon is a talented teacher with very high expectations for his students. I think he had fun as well.”

Jeff Eberwein (Teacher from Marshfield High School)

ATLAS Outreach Participation

- ⦿ ATLAS Outreach is looking forward to actively participating in the Discover The Cosmos Project
- ⦿ Please let us know how we can help!