



# From INFINI.TO To EXPLORATORIUM

*Associazione ApritiCielo*

*Consorzio Interuniversitario Fisica Spaziale*

*ThalesAleniaSpace - Italia*

*Regione Piemonte*



# The Astronomical Park



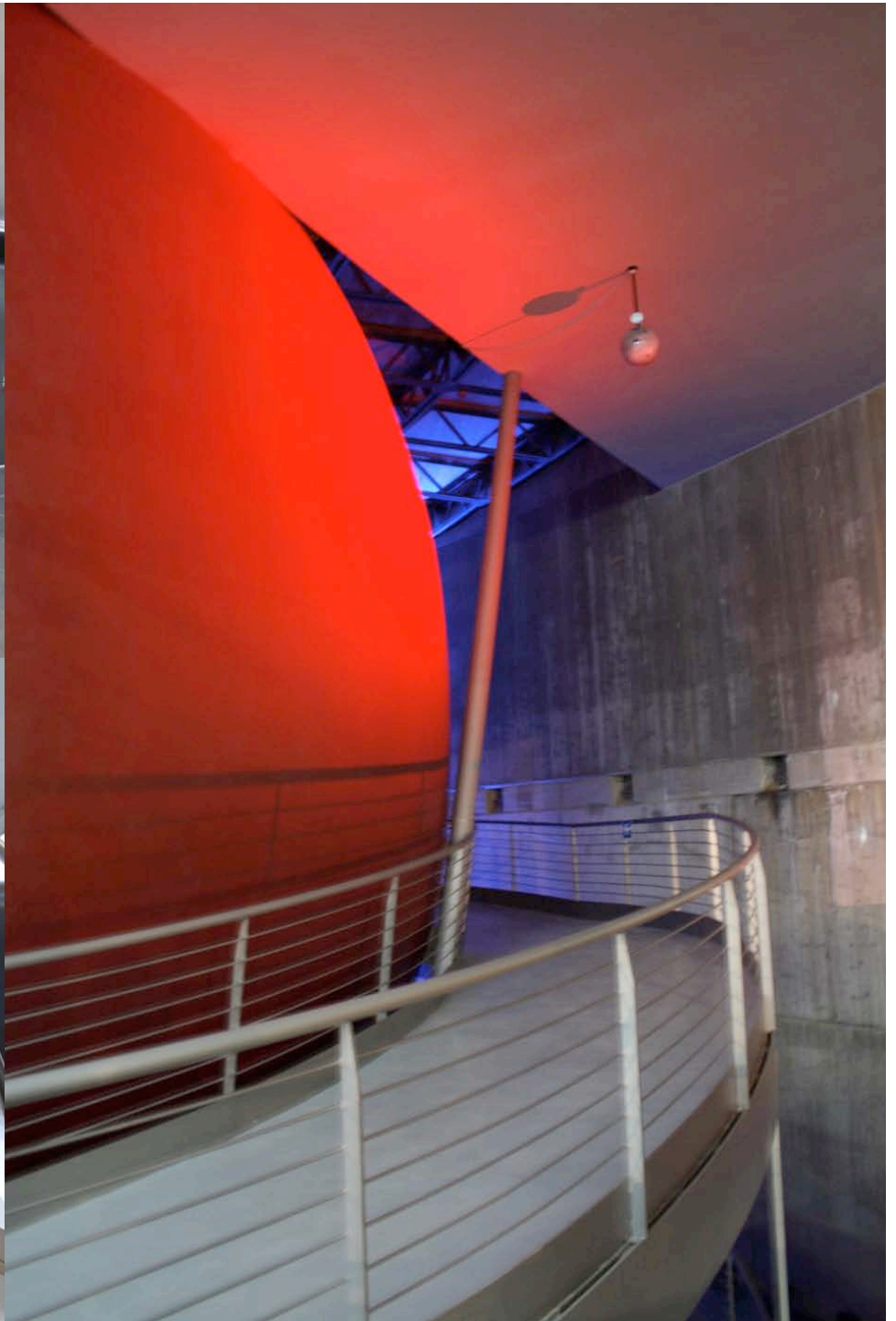
- Inaugurated in 2007 on the hills 15 km from Torino, next to the Astronomical Observatory in Pino Torinese
- Aim: to offer students, teachers and the general public updated informations and exhibits on the progress of astronomy and space science
- Deeply rooted in Piedmont with strong contacts with leading Italian and international museums
- Collaborations with universities, research institutions and companies
- Visited by 200.000 people in the first 4 years of operation

# A modern Science Centre

- Interactive installations to experience astronomical themes
- A digital planetarium with a schedule of shows for schools and the general audience
- Most of the shows for schools are produced entirely by the Staff of Infini.to
- The scientific communicators offer guided tours and interactive courses
- Special activities are organized in the occasion of astronomical events











## *Interactive Exhibits/specific of site*

- Infini.To is organized in an educational path on different levels
- Entrance floor: The history of astronomy
- Floor -1: Observation techniques from ground and from orbiting satellites to reach the whole electromagnetic spectrum
- Floor -2: Hand-on exhibits for direct experience of the forces that dominate the universe; jumping on the Moon, the “ballerina effect”, the convection in stellar interiors, etc.
- Floor -3: Cosmology and interactive exercises to test the knowledge of astronomy at different levels of expertise
- Mediateca: an archive with original movies about the conquest of space and interviews with leading astronomers

## *Activities/communication strategy focused at special target groups*

- Guided tours for the broad public
- Entertainment groups for children of age below 12 yrs
- Laboratories for students organized under request of teachers
- Study groups for teachers of schools of any level
- Laboratories for amateurs
- Conferences and study groups on different subjects of astronomy and space science
- Series of lectures by scientists in collaboration with the University, the Astronomical Observatory and ThalesAleniaSpace
- Press releases
- Web site, social networks

# Evolution towards an Exploratorium

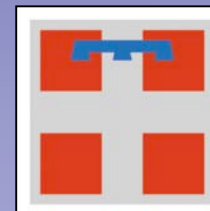
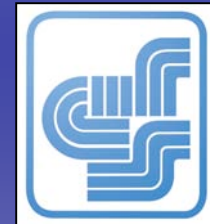
- The scientific institutions and industries in collaborations with the local government (City of Turin, Province of Turin and Piedmont Region) have promoted the creation of an Exploratorium in synergy with Infini.To, focused on robotic and human exploration of space
- The Exploratorium is intended to be a place where different scientific institutions, both public and private, as well as the general public, meet to discuss the results and future aims of space research



# EXPLORATORIUM

Exhibition Center

*TAS-I / UNITO / CIFS*  
*Piedmont Region*



By making all the data available to the public, NASA is ensuring that the data is used for the benefit of the people. For more information on the data and privacy policy, please visit [www.nasa.gov/privacy](http://www.nasa.gov/privacy). For more information on the data and privacy policy, please visit [www.nasa.gov/privacy](http://www.nasa.gov/privacy).

## SPACE EXPLORATION

### Where

### What

### Benefits

- **Solar System regions currently attainable to humanity (by present technologies)**

- **Scientific research: information about the genesis of Solar System, presence of organic life on Mars and Titan, finding water on Moon and Mars, geology, climatology, etc.**

- **Advancement in new technologies, with possible interesting return on everyday activities, stimulating innovation**

- **Lagrangian Points, Earth's Magnetosphere, Moon, Mars, Near Earth Objects, comets, ...**

- **Economical exploitation (e.g., research of rare metals, radiation effects, exobiology, ...)**

- **Advancement of scientific research and dissemination of scientific knowledge**

- **Travelling towards the heliospheric boundaries, outside the Solar System and towards new planets**

- **Technology: research on future space vehicles and propulsion systems**

- **Economical growth by launching new industrial/commercial opportunities**

- **A virtual trip onto deep space**

- **The presence of life in the Universe, human kind far future and destiny**

- **Foster scientific education of young generations**

- **Creating new opportunities and new jobs**

- **Formation of highly specialized personnel**

## SPACE & PIEDMONT

### Partnerships

- Thales Alenia Space – Italy and ALTEC

- CIFS (Inter-University Consortium of Space Physics)

- University and Politecnico of Turin, Turin Academy of Sciences

- Piedmont Region
- Infini.To, Astronomy and Space museum with digital planetarium

- Several PMI in Turin and Piedmont

- ESA

### Recent Projects

- STEPS (Systems and Technologies for the Space Exploration)

- SEEDS (Space Exploration and Development Systems)

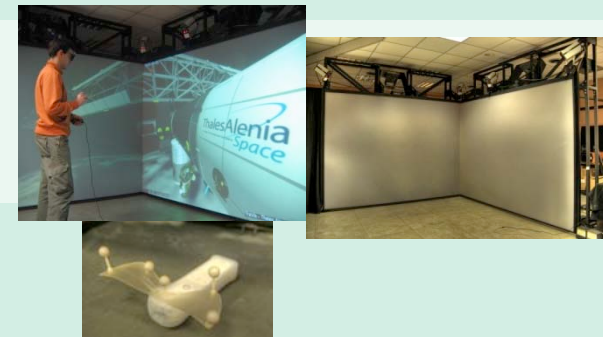
- The International Year of Astronomy 2009

- ASTRO\_VR

- Developmento of hands-on exhibits in science museum Infini.To

### Virtual Reality

- COSE Centre (Collaborative System Engineering ) with VR-CAVE for immersive environments



# THE EXPLORATORIUM AT TURIN

## Goals

- **Actively involve a public audience into the organization of a spatial mission**
- **Increase scientific backgrounds of the audience**
- **Encourage young people towards science**
- **Highlight the importance of space exploration for its potential returns and applications to everyday life**

## How

- **Develop an exhibition center based on innovative technologies for stereo immersive environments simulating space travels**
- **Exploit interactive devices (e.g., gloves, augmented reality and force feed-back devices, ...)**
- **TAS-I software (e.g., Veritas)**
- **Infini.To hardware tests on visitors**
- **Imagination ...**

## Ideas

- **The history of the manned space exploration: technology, people, sites**
- **Interactive organization of a space mission towards the Moon and/or Mars with a manned crew**
- **Analysis of risks during space cruise (e.g., radiations, and meteorites / asteroids impacts)**
- **Virtual replication of space phenomena in the Solar system**
- **Landing on a planet**
- **Building and housekeeping life environments**
- **A stereo dream: mankind on a Earth-like planet, travel towards other stars and galaxies**



# A NETWORK OF EXPLORATORIA

## **INSIDE science**

- Educating and training in space exploration science
- High quality scientific dissemination in appealing simple approach
- Interactive laboratory and hands-on experiments

## **BEYOND science**

- Achieving EC directions within the Treaty of Lisbon in the area of scientific innovation and research
- Creating and testing cutting-edge technologies
- Developing a network of academic and scientific cooperating partners
- Space exploration in everyday life: the unknown relationship revealed



# THE TRAVELLING EXPLORATORIA

- ◆ MAIN SITE: Turin (Italy)
- ◆ SECONDARY SITES:
  - ◆ everywhere an existing museum / laboratory / science center / hall / ... can / wants to house in a particular facility exhibits / equipment / attraction for a permanent / temporary exhibitions;
- ◆ TRAVELLING SITES:
  - ◆ for events / shows / conferences / kermess / galas / ...
  - ◆ “lighter”, reduced versions of the original attractions in stable sites
- ◆ Spreading the Exploratorium space can:
  - ◆ extend the catching area and reach a vaster audience;
  - ◆ generate benefits from the scientific, economic and job opportunity point of view
  - ◆ improve the scientific content: a wider coverage of space exploration themes allows different sites to specialize into different themes