LISA Pathfinder Mission

Later this year the LISA Pathfinder spacecraft will be launched on top of a Vega rocket from Europe’s spaceport in Kourou. The Purpose of this new ESA craft is to test the technology for gravitational wave detection in space. Thus paving the way for future and further scientific exploration of gravitational waves in the fabric of space time educating us about our universe and its history.

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| 10:00:00 | ESA leader |
| 10:00:10 | Title: LISA Pathfinder |
| - Images of LISA Pathfinder (main spacecraft and propulsion module in IABG cleanroom, Ottobrunn, Germany – 03/06/2015 - ESA | **At the IABG cleanroom near Munich, Germany, the LISA Pathfinder spacecraft or LPF spacecraft is undergoing its final tests before being shipped to Arianespace in Kourou, French Guiana, for launch.**  **LISA Pathfinder is a ground-breaking spacecraft developed by the European Space Agency. It is a fundamental technology mission aimed at testing the concept of low-frequency gravitational wave detection which could help us improve our knowledge of the universe.** |
| 10:00:40  - Interview Paul McNamera, IABG cleanroom, Ottobrunn, Germany – 03/06/2015- ESA | **ITW Paul McNamara, LPF Project Scientist ESA**  *LISA Pathfinder is very important to astrophysics because we are opening a brand new window to the universe and that is the window of gravitational waves. And gravitational waves allow us to look back to the very earliest regions of the universe to see stars forming and galaxies forming. Allow us to measure supermassive black holes and in essence we are measuring the gravity of the universe. The fundamental force of our universe* |
| 10:01:03  - Still Gravitational wave in space, unknown date -ESA  - Still Einstein in front of blackboard, unknown date - internet.  - Quasar animation from Integral, a decade revealing the high-energy sky -2012 – ESA  - fly through galaxy animation from Integral, a decade revealing the high-energy sky -2012 – ESA  - Lisa pathfinder animation, visualisation of Lagrange point – June 2015 – ESA | **The phenomenon of gravitational waves was predicted by Einstein’s theory of General Relativity in 1916 and they are in essence faint ripples in the fabric of space time… the echoes of cosmic events which happened long ago., in a galaxy far, far away.**  **The LPF-spacecraft will be stationed in a stable orbit between earth and the sun at a distance of 1,5 million kilometres from earth, also known as the 1st Sun-Earth Lagrange point. As it floats in space, the LPF works as a container enveloping two very dense gold-platinum cubes which are put in near-perfect gravitational free fall. As these cubes move in free fall, the spacecraft measures their tiniest movements and also shields the cubes, protecting them from any unwanted external influence.** |
| 10:01:53  - Lisa pathfinder animation, build up of LISA pathfinder – June 2015 - ESA | **Being a fundamental science mission, the LISA Pathfinder’s mission is not aimed at the detection of gravitational waves but at testing the new and innovative technologies needed for shielding the test masses, as well as making the most accurate measurements in their relative motion.**  **For a mission such as this it is hard to see what the day to day applications of this mission might be.** |
| 10:02:15  - Interview Cesar Garcia Marirrodriga, IABG cleanroom, Ottobrunn, Germany – 03/06/2015 | **ITW Cesar Garcia Marirrodriga, LISA Pathfinder Project Manager, ESA**  *We have to look back at the fundamental science that was done many years ago and which has day to day applications nowadays. LISA Pathfinder is really opening the door of new fundamental science that will be done in the future and in terms of closer to earth applications LISA pathfinder is also changing the way in which we fly space missions. Even closer to us the technologies that we have use to analyse noise, analyse motions and measure distances, this can be used for ground based applications in the near future.* |
| 10:02:51  - Launch of first VEGA – Ariannespace, Kourou French Guiana - Februari 2012 – ESA  - LTP (LISA Pathfinder Technology Package) Core Assembly composite unit (inside class 100 clean room ), IABG cleanroom, Ottobrunn, Germany – 03/06/2015- ESA  - Images of LISA Pathfinder (main spacecraft and propulsion module in IABG cleanroom, Ottobrunn, Germany – 03/06/2015 - ESA | **And so with high expectations, the LISA Pathfinder will soon be launched into space on top of Europe’s own Vega launcher. It will be the first high-quality orbiting gravitational laboratory for Fundamental Physics missions, confirming and perhaps even enriching our understanding of general relativity and our universe in general. This is truly a pioneering mission and shows once again that ESA is paving the way into the future.** |
| 10:03:19 | **B-ROLL** |
| - Interview Paul McNamera, IABG cleanroom, Ottobrunn, Germany – 03/06/2015- ESA | **ITW Paul McNamara, LPF Project Scientist ESA (ENGLISH)**  -Why Gravitational waves important and where do they come from?  - What are Gravitational waves and how can they be measured? |
| 10:04:27  - Interview Paul McNamera, IABG cleanroom, Ottobrunn, Germany – 03/06/2015- ESA | **ITW Paul McNamara, LPF Project Scientist ESA (ENGLISH)**  - What can LISA Pathfinder do?  - Problems observing the gravitational waves and how do LISA Pathfinder work? |
| 10:05:13  - Interview Paul McNamera, IABG cleanroom, Ottobrunn, Germany – 03/06/2015- ESA | **ITW Paul McNamara, LPF Project Scientist ESA (ENGLISH)**  - General Theory of relativity, one hundred years ago.  - How the measure Gravitational waves, comic events with small impact how to measure |
| 10:06:30  - Interview Cesar Garcia Marirrodriga, IABG cleanroom, Ottobrunn, Germany – 03/06/2015 | **ITW Cesar Garcia Marirrodriga, LISA Pathfinder Project Manager, ESA (ENGLISH)**  - LISA Pathfinder a new way of looking into science, challenging and reasons for ESA to deploy a spacemission. |
| 10:07:10  - Interview Cesar Garcia Marirrodriga, IABG cleanroom, Ottobrunn, Germany – 03/06/2015 | **ITW Cesar Garcia Marirrodriga, LISA Pathfinder Project Manager, ESA (ENGLISH)**  - The applications of fundamental science mission like LISA Pathfinder |
| 10:08:05  - Interview Cesar Garcia Marirrodriga, IABG cleanroom, Ottobrunn, Germany – 03/06/2015 | **ITW Cesar Garcia Marirrodriga, LISA Pathfinder Project Manager, ESA (SPANISH)**  - The applications of fundamental science mission like LISA Pathfinder |
| 10:09:28  - Images of LISA Pathfinder (main spacecraft and propulsion module in IABG cleanroom, Ottobrunn, Germany – 03/06/2015 - ESA | **LISA Pathfinder in IABG Cleanroom 28 shots** |
| 10:12:49  - Lisa pathfinder animation, build up of LISA pathfinder – June 2015 - ESA | **LISA Pathfinder Build-up full animation** |
| 10:14:15 | END |