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69TH INTERNATIONAL
ASTRONAUTICAL CONGRESS
BREMEN | 1-5 OCTOBER 2018



IAC 2018 HIGHLIGHT LECTURES: FROM ARTIFICIAL INTELLIGENCE TO ORBITAL ECONOMY

The **69th International Astronautical Congress – IAC 2018** to be held from **1 – 5 October 2018** in **Bremen, Germany** offers a rich Plenary Programme including three Highlight Lectures which will tackle some key issues of today's world.

On **Tuesday 2 October 2018**, from **18:00 – 19:00**, **Steve Ankuo Chien**, Senior Research Scientist at the Jet Propulsion Laboratory, California Institute of Technology will dive into the very challenging topic of Artificial Intelligence.

Artificial Intelligence is playing an increasing role in not only our everyday lives but also in the space sector where AI has the potential to revolutionize almost every aspect of space exploration. This talk will begin by describing a number of success stories highlighting the tremendous impact of Artificial Intelligence: over a dozen years of operations of the Autonomous Sciencecraft on EO-1 and Sensorweb tracking volcanoes, flooding and wildfires, Machine Learning to triage enormous data streams in radio (V-FASTR) and visual (i-PTF) astronomy, Automated Targeting onboard the MER and MSL rovers (AEGIS), automatic semantic indexing of science features (Mars Target Encyclopedia), and automation of data management for Rosetta Orbiter operations. Finally, we will describe how AI is critical to future mission concepts to search for life beyond Earth: a Europa Submersible to hunt for life on under-ice oceans of Europa, and an interstellar mission to explore distant solar systems.

On **Wednesday 3 October 2018**, from **18:00 – 19:00**, **Claus Lämmerzahl**, Professor for Theoretical Physics and Director for Space Sciences at the Center of Applied Space Technology and Microgravity (ZARM), and **Karsten Danzmann**, Director of Max Planck Institute for Gravitational Physics (Albert Einstein Institute) and Institute for Gravitational Physics of the Leibniz Universität Hannover will focus on Gravitational Wave Detection on Ground and in Space.

According to Einstein, gravitational waves are created by accelerated masses like in binary systems of Black Holes or Neutron Stars which circle around each other, approach each other, and finally merge. The gravitational wave signals carry information about the physics of the Black Holes, in particular of their event horizons, and of the highly extreme

states of matter inside Neutron Stars. Such gravitational waves can also be used for a highly precise method to establish a cosmological distance scale which will contribute to a further independent and improved determination of the Hubble parameter and of the dark energy in our universe. Furthermore, gravitational waves can provide a better understanding of the fluctuations of matter and space-time in the very early universe and its inflationary phase. Beside electromagnetic radiation, gravitational waves thus provide a second and very clean way to observe the dynamics of Black Holes, stars, and the whole universe.

Last but not least, on **Thursday 4 October 2018**, from **18:00 – 19:00**, **Tom Enders**, Chief Executive Officer (CEO) of Airbus Group, will speak about business opportunities in space.

Today, space – be it Low Earth Orbit or even outer space – is not anymore an area reserved to states and their institutions. We see an increasing amount of private ventures investing massively into new space capabilities, setting new records in the coming years in terms of investments, product / services development and launches. For more than 10 years Mankind has had an orbital outpost in Low Earth Orbit – the International Space Station ISS. But now LEO is not an area only to discover anymore it has clearly become a part of Earth's Economic area. Orbital Economy is a reality, it happens now, we need to reinforce it and we need to expand it further out to GEO and to the Moon.

More information about the Plenary Programme are available [here](#).

Members of the press are invited to save the date, and [register](#) to ensure that they receive accreditation. Please send confirmation of your registration to media@iafastro.org so that we can ensure that you are properly accredited.

For more information

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