

PRESS RELEASE – 2 MARCH 2015

## X-CAN: École Polytechnique and Thales to develop a new generation of lasers

École Polytechnique and Thales signed a partnership agreement on the 9<sup>th</sup> of February with a view to developing a revolutionary new laser technology.



Left to right: Jacques Biot, President of École Polytechnique, Marko Erman, Chief Technology Officer at Thales and Denis Levaillant, head of Thales's laser activities.

The joint technology development project is part of a renewable, four-year scientific partnership agreement signed by Thales and École Polytechnique on the 11<sup>th</sup> of March 2014. For this new project, the partners will build on their complementary expertise and experience in laser technologies to develop a new generation of lasers.

The research programme, known as X-Can, will capitalise on work conducted by École Polytechnique to apply a new scientific concept developed by several of its research teams and by Thales researchers in Palaiseau. The Coherent Amplification Network (CAN) concept is based on the use of an array of fibre lasers for amplification and coherent combination of laser beams, a radically new approach to laser system architectures that is expected to achieve exceptional laser shot characteristics. X-Can

aims to overcome all the key scientific and technological barriers to the design and development of an experimental laser demonstrator.

These innovations in laser technology will open up new avenues of scientific research and ultimately offer numerous practical applications including the transmutation of nuclear waste, proton therapy and isotope production for nuclear pharmacology, as well as design solutions for sub-critical nuclear reactors and even ways to clean up orbital debris in space.

École Polytechnique's President Jacques Biot stated: *"I'm delighted by this agreement, which opens promising avenues for break-through laser technology. 'Light and matter in extreme conditions' is one of l'X's eight strategic fields of excellence. Our collaboration with Thales on X-Can is a perfect example of our ambition to create research initiatives in a collaborative way in selected scientific areas. It also illustrates the potential of the Paris Saclay cluster to enhance cooperation amongst its members."*

Marko Erman, Chief Technical Officer of Thales, said: *"This project is fully in line with the Group's strategic research roadmap based on mutually beneficial partnerships to optimise the transition between research and innovation."*

Thales' optronics business, a world leader in petawatt-class lasers, expects the cooperation to bring an important breakthrough in optical efficiency, leading to significantly higher performance at lower cost and opening up new applications for laser technology.

The project will be based in part on a recently completed 18-month study financed by the European Commission and conducted for the CERN (European Organization for Nuclear Research) by some of the leading research institutes in France, the United Kingdom and Germany in the field of high-power optical fibre lasers.

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**ABOUT ÉCOLE POLYTECHNIQUE**

École Polytechnique is a leading French institute which combines top-level research, academics, and innovation at the cutting-edge of science and technology. Its three types of progressive graduate-level programs – Ingénieur Polytechnicien, Master’s, and PhD – are highly selective and promote a culture of excellence with a strong emphasis on science, anchored in humanist traditions. As a widely internationalized university, École Polytechnique offers a variety of international programs and attracts a growing number of foreign students and researchers from around the globe (currently 30% of students and, 23% of faculty members).

École Polytechnique offers an exceptional education to prepare bright men and women to excel in high-level key positions and lead complex and innovative projects which meet the challenges of 21st century society, all while maintaining a keen sense of their civil and social responsibilities. With its 20 laboratories, all joint research facilities with the French National Center for Scientific Research (CNRS), the École Polytechnique Research Center explores the frontiers of interdisciplinary knowledge to provide major contributions to science, technology, and society.

<http://www.polytechnique.edu>

**ABOUT THALES**

Thales is a global technology leader for the Aerospace, Transport, Defence and Security markets. With 61,000 employees in 56 countries, Thales reported sales of €13 billion in 2014. With over 20,000 engineers and researchers, Thales has a unique capability to design and deploy equipment, systems and services to meet the most complex security requirements. Its unique international footprint allows it to work closely with its customers all over the world.

<http://www.thalesgroup.com>