Press release

Honored for their technical and scientific collaboration across borders

The French–Swiss Chamber of Commerce and Industry's *Innovation Prize* has been awarded to CSEM and ONERA

Montreux, 12 February 2016—CSEM and its French partner ONERA have been awarded the *Innovation Prize* for the excellence of their technical outcomes in the development of a pressure-sensitive paint for aerodynamic analyses in transonic wind tunnels.

The French–Swiss Commerce Trophies have been awarded every year by the French–Swiss Chamber of Commerce and Industry (CCIFS, www.ccifs.ch) since 1988. A leading economic event for all parties to this reciprocal relationship, the 27th edition of the event rewarded companies and organizations whose performance is distinguished by the energy of their French–Swiss exchanges—at an economic level and in terms of tradition, expertise, and scientific knowledge.

On Friday, 12 February, CSEM and ONERA were awarded one of the CCIFS trophies in recognition of their development of a pressure-sensitive paint used to analyze aerodynamic fluctuations on models in transonic wind tunnels. The key factors for the success of this collaboration—and for the two organizations winning the CCIFS Innovation Prize—were the excellence of the researchers, the highly complementary scientific and technical nature of the two organizations, and the successful union of aeronautical and space technologies with nanotechnologies.

A leading player in French aeronautics and space research, ONERA runs a world-class wind tunnel park to meet the needs of aviation and aerospace manufacturers. ONERA is preparing for the future by developing precise and reliable metrology solutions. ONERA has developed pressure-sensitive paint (PSP) to measure the distribution of pressure on the surfaces of models tested in wind tunnels. Pressure-sensitive paint is based on the principal of a dye whose luminescent properties depend on the air pressure exerted on it.

While ONERA has been able to measure average air pressure using PSP for several years, the extension of such measurement into the domain of dynamics presents numerous challenges. At the same time, manufacturers are attaching a growing importance to the understanding and control of airflow on the wing surface in order to improve safety and aircraft flight performance.

The objective of the CSEM–ONERA collaboration is to develop a new, short-term response PSP to allow the measurement of pressure fluctuations under the pressurized conditions of industrial transonic wind tunnels. CSEM's expertise in gas nano-sensors and its experience of collaboration with the industry motivated ONERA in its choice of partner. The nanoporous structure of this new paint generates a large surface for exchange with the air, thus contributing to the achievement of the desired performance.

The tangible results are a highly competitive technology and the addition of a significant new metrological tool to ONERA's offering. The new paint developed with CSEM has already been used by ONERA in the context of an industrial contract.

The fields in which PSP technology can potentially be applied extend beyond aeronautics and space to a broader range of domains.

CSEM SA Headquarters
Jaquet-Droz 1
Case Postale
CH-2002 Neuchâtel
T +41 32 720 5111
F +41 32 720 5700

Additional information

CSEM
Emmanuel Scolan
Expert, Nanoscale Technology
Tel. +41 32 720 54 44
E-mail : emmanuel.scolan@csem.ch

ONERA
Marianne Lyonnet
Directrice Souffleries de Modane
Tel. +33 479 202 110
E-mail : marianne.lyonnet@onera.fr

About CSEM

CSEM—Technologies that make the difference

CSEM, founded in 1984, is a research and development center (public–private partnership) sp ecializing in m icrotechnology, nanotechnology, microelectronics, system engineering, photovoltaics, and communications technologies. Around 450 highly qualified specialists from various scientific and technical disciplines work for CSEM in Neuchâtel, Zurich, Muttenz, Alpnach, and Landquart.

www.csem.ch follow us on

About ONERA

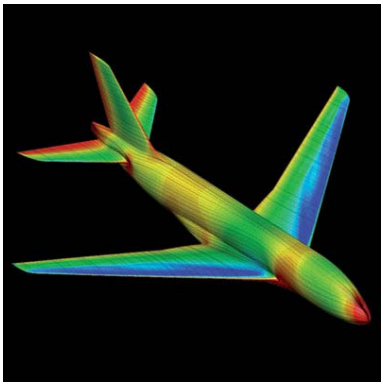
ONERA—the French aerospace lab

ONERA is the French national laboratory for aeronautics and space R&T, staffed by more than 2,000 people. Under the supervision of the French Ministry of Defense, ONERA has an annual budget of 207 million euros, of which more than half comes from commercial contracts. As the French expert in aerospace technologies, ONERA prepares tomorrow's defenses, meets the aerospace challenges of the future, and contributes to the competitivene ss of the European aeros pace industry. ONERA masters all the disciplines and technologies in i ts aerospace fields.

To find out more, refer to the websites http://www.onera.fr/en and http://windtunnel.onera.fr/

Video interview: "Non-stop innovation for the aeronautical industry @CSEM"

Marianne Lyonnet of ONERA talks about what makes CSEM the "best partner on the planet" (start: 2'15'') https://www.youtube.com/watch?v=oVWIsmzJOH0



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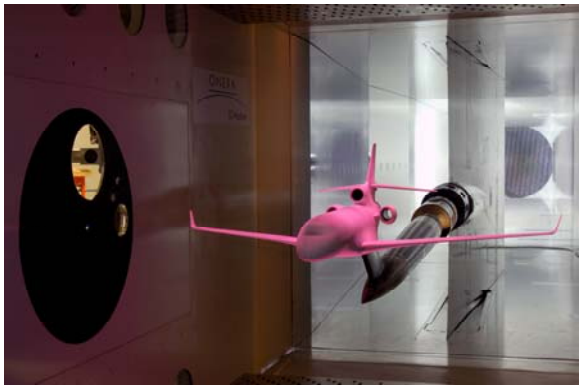
Modelling of pressure exerted on the surface of an aircraft in flight (additional information at http://www.onera.fr/fr/pepites/la-modelisation-ou-lart-de-vaincre-les-difficultes-en-simulation-aerodynamique).



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Model of a Dassault Falcon tested in wind tunnel S2 and covered in pressure-sensitive paint.

Press contact

CSEM
Claudine Julia-Schmutz
Marketing Communications Manager
Tel. +41 32 720 56 94
Mob. +41 79 786 06 43
claudine.julia-schmutz@csem.ch

ONERA
Camille Blosse
Direction de la communication
Tel. +33 1 80 38 68 54
Mob. +33 6 10 55 22 17
camille.blosse@onera.fr

ONERA
Sylvain Gaultier
Direction de la communication
Tel. +33 1 80 38 68 57
Mob. +33 6 74 93 41 65
sylvain.gaultier@onera.fr