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INAUGURATION OF A CHAIR IN COATINGS AND SURFACE ENGINEERING

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As of Oct. 1 Polytechnique Montréal, the Natural Sciences and Engineering Research Council of Canada (NSERC) and seven industry partners are inaugurating the NSERC Multisectoral Industrial Research Chair in Coatings and Surface Engineering (MIC-CSE).

As the country's second-largest industrial research chair awarded by the NSERC, all fields combined, the MIC-CSE will have a budget of \$5.35 million over five years: \$2.6 million from NSERC and a total of \$2.75 million from its seven partners: Essilor, Hydro-Québec, Guardian Industries Corp., Pratt & Whitney Canada, Velan, JDS Uniphase and the Canadian Space Agency.

Research will focus on developing a new generation of non-polluting manufacturing technologies for nanostructured coating materials. These processes make it possible to add successive

layers of nanometre-thick films and thicker coating architectures, using various materials (metals, ceramics, polymers, nanoparticles, or others) on flat surfaces as well as on three-dimensional objects. Far from being limited to corrosion and wear protection, these "molecular millefeuilles" aim to confer a wide range of functional characteristics to the surfaces: anti-glare, anti-erosion and anti-fog as well as self-controlled (or "smart") optical reflectivity or emissivity, luminescence, sterility and more.

"The possible functionalities are limited only by our imagination," said Ludvik Martinu, MIC-CSE Chairholder and Professor in the Department of Engineering Physics at Polytechnique Montréal. "The technologies we are developing will help us avoid relying on processes that are harmful to the environment, such as those using solvents. This is in response to a sustainable development issue that's becoming crucial for businesses. It will also help explore new avenues for energy saving and for new high-value-added products."

The scope of collaborations within the MIC-CSE Chair reflects the immense range of industry fields in which multi-layer coating technologies can be applied. The research carried out at Polytechnique will improve the sustainability and effectiveness of materials in sectors as varied as aerospace, energy and manufacturing, as well as optics, photonics and space exploration.

PHOTO: Janet Walden, CRSNG and Ludvik Martinu, Polytechnique

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