



Fyzikální ústav Akademie  
věd České republiky  
Institute of Physics of the  
Czech Academy of Sciences

# CELOÚSTAVNÍ SEMINÁŘ FZU COLLOQUIUM

10. 5. 2023 | 14:00

Přednáškový sál Na Slovance | Main Lecture Hall Na Slovance  
Pod Vodárenskou věží 1, Praha 8

## Ludvik Martinu

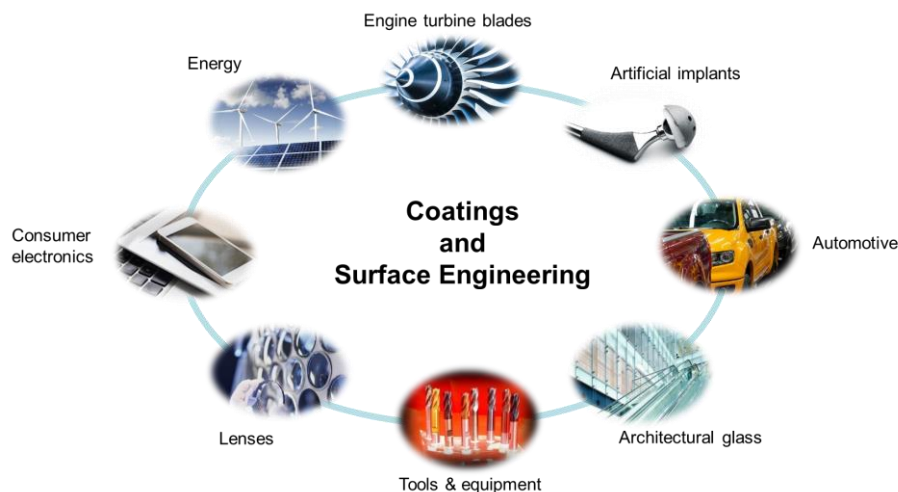
Functional Coating and Surface Engineering Laboratory (FCSEL)  
Department of Engineering Physics, Polytechnique Montréal, Canada

### Surface engineering for sustainable future: Multifunctional coatings for optics, energy, and aerospace applications

Functional and multifunctional coating applications represent a multibillion dollar market worldwide. As the range of applications of coatings continuously broadens and extremely attractive market opportunities arise, it is becoming increasingly important to develop new nanostructured thin film materials with specific functional properties.

This presentation will describe a **holistic approach to coatings and surface engineering** based on a broad and in-depth knowledge of the interplay between the coating architecture, material characteristics, process, and performance assessment of coating systems with respect to specific applications, durability in demanding environments, and life cycle analysis.

It will review the progress and future opportunities for the use of nanostructurally-controlled architectures benefiting from advanced deposition techniques, including high power impulse magnetron sputtering (HiPIMS), ion beam assisted chemical vapor deposition (IBA-CVD), combined glancing angle/atomic layer deposition (GLAD and ALD), and pulsed hollow cathode plasma-enhanced chemical vapor deposition (PECVD). We will describe examples of case studies and applications such as advanced glazing for energy management and saving in smart windows and nanosatellites, hybrid (organic/inorganic) coatings for ophthalmic lenses, as well as protective coatings for aircraft engines and manufacturing components.



Seminář proběhne v angličtině. Hlavním organizátorem je Fyzikální ústav Akademie věd ČR.  
The colloquium will be held in English. Organised by Institute of Physics of the Czech Academy of Sciences.