



INVITED SPEAKER

PROF. ALEXANDER L. KALAMKAROV

DALHOUSIE UNIVERSITY
HALIFAX, NOVA SCOTIA, CANADA



NOVA

NOVA SCHOOL OF
SCIENCE & TECHNOLOGY
DEPARTMENT
OF CIVIL ENGINEERING



DALHOUSIE
UNIVERSITY



27TH

JULY, 2022

3:00 P.M.



DEPARTMENT OF CIVIL ENGINEERING

ROOM 4.17

COMPOSITE MATERIALS AND SMART STRUCTURES IN MODERN ENGINEERING AND EVERYDAY LIFE

SEMINAR

COMPOSITE MATERIALS AND SMART STRUCTURES IN MODERN ENGINEERING AND EVERYDAY LIFE

Advances in modern engineering are determined, to a large extent, by the development and application of composite materials and structures. Modern composites outline traditional materials. They are light-weight, corrosion-resistant, and very strong. Composites are made of at least two different constituent materials, for example fibers and resin matrix. The combined properties of the reinforcing fibers and matrix can provide the optimal overall properties of the composite structure required for the particular engineering application. To make the best composite material, we should know very well the local and overall mechanical properties of the structure and we also should develop the best fabrication technologies. The major types of composites and nano-composite structures, their properties and applications will be introduced and discussed.

Next topic of presentation is related to the emerging smart composite structures. These innovative materials are making revolutionary changes in the modern engineering. They can be described as adaptive structures, which incorporate sensors and actuators. Smart structures can assess their own state and perform self-repair and self-adjustment as conditions change and thereby enhance their functionality and survivability. The examples of already existing smart structures include a smart wing with fitted actuators that suppress aeroelastic wing flutter, or a smart ski actively cancelling out shocks and vibrations, or a building that can phone in its status after an earthquake. Major types of smart structures will be introduced and discussed, and the author's results in the analysis of practically important smart composite structures will be presented.

INVITED SPEAKER

PROF. ALEXANDER L. KALAMKAROV

DALHOUSIE UNIVERSITY
HALIFAX, NOVA SCOTIA, CANADA



27

JULY, 2022

3:00 P.M.

NOVA

NOVA SCHOOL OF
SCIENCE & TECHNOLOGY
DEPARTMENT
OF CIVIL ENGINEERING