

# Advanced Composite Materials in Extreme Environment: Design, Performance and Characterization



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言語/英語  
Language/English  
どなたでもご聴講  
いただけます  
Everyone is welcome  
to attend.

Date and time

Monday

December **16**, 2019  
10:30 ~ 12:00

### Venue

東京農工大学 小金井キャンパス  
9号館 5階 505会議室  
Meeting Room 505, 5th. Fl.,  
Building 9, Koganei Campus, TUAT



### ■共催 / Co-Organized by

グローバルイノベーション研究院  
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### Abstract

In this talk, I will first introduce our research group's three main areas of interests: advanced composites, elastic metamaterials and biomimetic structures. Huge reduction in Arctic ice region in recent years has spurred tremendous interest to explore material performances at extreme low temperature environment. I will present results involving the impact performance and dynamic behavior of composite sandwich structures in low temperature Arctic conditions. In particular, complex damage mechanisms are elucidated by non-destructive inspection techniques. The main focus of my talk is to relate extreme low temperature effect to impact performance, as well as establish relationships influencing post-impact behavior due to Arctic cold temperature conditions. We will study both compression-after-impact and flexural-after-impact performances, using experimental techniques, analytical modeling and statistical analysis. I will end the talk with a proposed hybrid facesheet design and a bioinspired horse hoof core design. Our work aims to provide fundamental understanding of how composites behave in Arctic environment, so as to guide future improved design of composites for naval applications in the Arctic region.

### ■お問合せ先 / Contact

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