



IFToMM TC for Tribology

Webinar

25 June 2021

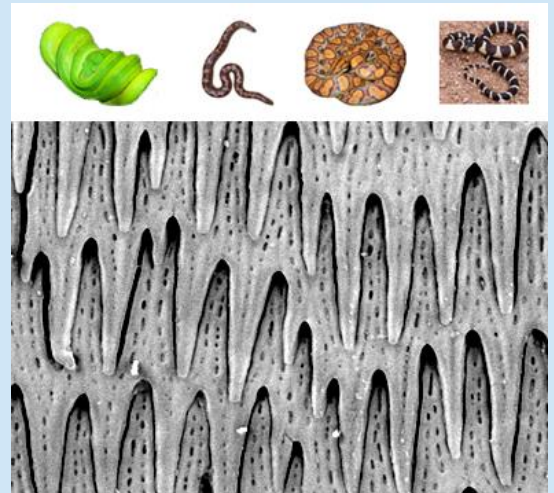
Snake skin Tribology: Mechanism of Friction and Wear Reduction

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Registration: <https://forms.gle/7J3qsHFvpJEyAHWk6>



Programme:

h:14:00 -14:05 Prof. Giuseppe Carbone, Politecnico di Bari, Italy: Greetings and introduction to the Webinar.

h:14:05 -14:45 Prof. Stanislav Gorb. Webinar presentation.

h:14:45 -15:00 Questions and discussion.

Abstract:

Owing to the lack of extremities, the ventral body side of snakes is in almost continuous contact with the substrate. In spite of this, snakes are one of the most successful animal groups in occupying various ecological niches. From a tribology point of view, their ventral skin surface has to fulfill two opposite functions: (1) to support body propulsion during locomotion by generating high friction in contact with the substrate, and (2) to reduce skin material abrasion by generating low friction in forward-sliding along the substrate. The present lecture summarizes recent activities in studying anisotropic frictional properties of the snake skin and mechanisms of friction and wear reduction. Furthermore, possible ways to biomimetics of tribologically-optimized surfaces inspired by the snake skin are discussed.

Stanislav Gorb studied Zoology at Taras Shevchenko National University in Kiev, Ukraine. He earned his doctorate in 1991 at the Schmalhausen Zoological Institute of the Ukrainian Academy of Sciences in Kiev, Ukraine. Following further research stays in Vienna, Kiev, Tübingen and Jena, he completed his habilitation at the Zoological Institute of Freiburg University, Germany. Subsequently, he spent several years at the Max Planck Institute of Metals Research in Stuttgart before he accepted the offer of a professorship in Functional Morphology and Biomechanics at Zoological Institute of Kiel University in 2008. He is a member of two faculties there: Faculty of Mathematics and Natural Sciences and Faculty of Engineering.