



**Politecnico
di Bari**

ETH zürich

Ingegneria Geotecnica: COME e PERCHÉ



"Has science solved one of history's greatest adventure mysteries?"

**Politecnico di Bari
Aula JEBA Oplà
Vetrato n.3 – Atrio PoliBA
4 Maggio ore 15:30-16:30**

Alexander M. Puzrin

About the Lecture

The Dyatlov Pass incident is an intriguing unsolved mystery from the last century. In February 1959, a group of nine experienced Russian mountaineers perished during a difficult expedition in the northern Urals. The deaths of the mountaineers had variously been attributed to an infrasound-induced panic, animals, attacks by Yetis or local tribesmen, katabatic winds, a romantic dispute, KGB/CIA secret activities, ballistic rockets, or nuclear weapons tests. A snow avalanche hypothesis was proposed, among other theories, but was found to be inconsistent with the evidence of a lower-than-usual slope angle, scarcity of avalanche signs, uncertainties about the trigger mechanism, and abnormal injuries of the victims. The challenge of explaining these observations has led us to a physical mechanism for a slab avalanche caused by progressive wind-blown snow accumulation on the slope above the hikers' tent. Our 2021 study in Nature Communications Earth & Environment shows how a combination of irregular topography, a cut made in the slope to install the tent and the subsequent deposition of snow induced by strong winds contributed after a suitable time to the slab release, which caused severe non-fatal injuries, in agreement with the autopsy results. The media echo to our article motivated us to continue investigating. After three successful expeditions to Dyatlov Pass it became clear that avalanches are not exceptional there and that slopes above the location where Igor Dyatlov and his group pitched their tent are steep enough for avalanches to release. Independent research by Russian snow and climate scientists supported assumptions and the main results of our slab avalanche modeling.

Alexander M. Puzrin is Professor and Head of the Institute of Geotechnical Engineering at the ETH Zurich, Switzerland. He is engaged in the constitutive modeling of geomaterials and the analysis of progressive and catastrophic failure in soils, with applications to onshore and offshore slope stability problems. His other interests are in applications of novel sensor technologies to geotechnical monitoring and in assessment and mitigation of geotechnical eco-hazards. Professor Puzrin has been involved as an expert and consultant in large-scale onshore and offshore geotechnical projects in the UK, the US, Switzerland, Australia, Mexico, Russia, Israel, Azerbaijan and Papua New Guinea.



Al termine del seminario verrà rilasciato ai partecipanti un attestato di frequenza

