

Theme Lecture 10

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Theme Lecture Title

**Mechanism and New Stability Analyses
of Progressive Failure of the Thrust-type
Landslide**



Professor Yingfa LU earned a bachelor's degree in the Department of Engineering Mechanics of Xi'an Jiaotong University and a doctorate in the Civil Engineering Department from University of Sciences and Technologies of Lille in France. His research interests mainly cover rock and soil mechanics, geo-technical engineering, slope stability, natural disaster monitoring and prediction, foundation engineering. He has proposed a new theoretical system of progressive deformation and failure mechanism and five new calculating methods of safety factor of slope. He has proved that the perfect elasto-plastic model is not suitable for describing the progressive failure process of slope, and the yield limit stress and peak stress spaces of geo-materials are changed with the damage evaluation. The proportional yield limit stress and peak stress are decreased with the damage development for most geo-materials. A generalized constitutive model is suggested to describe the complete process properties of stress (or load) and strain (or displacement) of rock-soil mass. The classification of different stability zone (stable zone, less stable zone, critical state and un-stable zone) along sliding face is proposed. It is found that both the shear stress and strain are discontinuous in the un-stable zone. A new calculating method (sliding face boundary method) is suggested to describe the discontinuous characteristics. A failure angle rotation method of originality is proposed to search for the potential sliding face of soil slope. Till now he has published more than 80 research papers in journals related to this subject.