**Session Proposal**

# Session Title

Evolution of Soil Organic Matter: Impacts of Climate Change and Land Use Change

# Session Organizers

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# Session Description

Soil organic matter (SOM) is a fundamental component of soil, playing a vital role in maintaining soil health and supporting sustainable agricultural practices. Significant spatial and temporal variations in SOM have been documented, driven by both natural processes and anthropogenic activities. This session aims to provide a dynamic platform for knowledge exchange and in-depth discussions on the evolution and dynamics of SOM across diverse terrestrial ecosystems, including croplands, grasslands, and forests. It will highlight cutting-edge research findings and advances in understanding SOM's role in the terrestrial carbon cycle, its contribution to carbon sequestration, and implications for soil health and sustainable land management strategies.

By emphasizing the interplay between SOM and environmental factors, the session will explore innovative approaches to optimize carbon storage and improve ecosystem resilience. Furthermore, it seeks to address emerging challenges in SOM management under the influence of climate change and intensive agriculture. Special attention will be given to the integration of interdisciplinary methods and advanced technologies, such as remote sensing, soil microbiome and modeling studies, to improve SOM assessment and management practices. An additional objective of the session is to foster the exchange of experiences among early-career soil scientists worldwide and to promote collaboration between Chinese and international research institutions. This exchange will help establish stronger networks and foster groundbreaking partnerships in SOM research and management.

# Format

Oral presentations

# Proposed Speakers

Dr. Minggang Xu (Shanxi Agricultural University) is an academician of the International Eurasian Academy of Sciences and the Chinese Academy of Engineering. He is an expert in soil improvement and fertilization, leading the long-term experimental network of cultivated land quality in China. Focusing on the major scientific and technological problems of soil degradation in China, such as low soil organic matter content, Dr. Xu developed the theory and key technologies of quantitative improvement of soil organic matter and fertility. He has published nearly 400 papers as the first/corresponding author, including more than 100 SCI papers and 8 monographs.