Sensors and Materials

Title of Special Issue:

Special Issue on Multisource Sensors for Resource and Environmental Monitoring: Theories, Models, Methods, and Applications

Topic Description of Special Issue:

Recent advances in Earth observation, unmanned aerial systems, LiDAR, hyperspectral imaging, IoT, and intelligent sensing technologies have greatly enhanced our ability to monitor natural resources and environmental processes. The increasing availability of multisource sensing data provides unprecedented opportunities for understanding complex environmental systems across multiple spatial and temporal scales. Meanwhile, emerging technologies such as AI, machine learning, deep learning, GeoAI, and digital twins are transforming environmental monitoring from data acquisition to intelligent analysis, prediction, and decision support. However, challenges remain in data integration, information extraction, uncertainty quantification, and system interoperability. The aim of this Special Issue is to provide an interdisciplinary platform for advancing theories, models, methods, and applications of multisource sensors in resource and environmental monitoring, promoting innovative solutions for sustainable resource management, environmental protection, and climate resilience.

Scope:

- Satellite, UAV, and airborne sensing technologies
- Multispectral, hyperspectral, and LiDAR applications
- IoT and environmental sensor networks
- Multi-source data acquisition and preprocessing
- Multi-sensor data fusion and integration
- AI and GeoAI for sensor analytics
- Environmental information extraction and retrieval
- Resource and ecosystem monitoring applications
- Intelligent monitoring and early-warning systems
- Sensor platforms and decision-support systems

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