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RESEARCH & COLLABORATION PROFILE

KEY WORDS: Natural Resource, Metamorphic Geology, Chronology, Thermodynamic modeling, Tectonics

Research Snapshot. Dr. Wang Haozheng mainly conducts research on the rock genesis and corresponding energy resources related to metamorphic fluids. By using thermodynamic calculations, isotope analysis, and simulations, analyze the formation process of various fluids, including natural hydrogen, during their interaction with rocks.

RESEARCH EXPERTISE

- Proterozoic evolution of Yangtze Block: Using in situ isotopic geochronology methods, U-Pb, Lu-Hf, Sm-Nd, and other geochronological studies were conducted on metamorphic minerals in key surrounding metamorphic rocks of the Yangtze Craton to establish a temporal framework for geological evolution processes.
- Metamorphism of UHT: Employing in-situ element analysis techniques and thermodynamic modeling, we conducted research on ultra-high temperature metamorphism and metamorphic geochronology to elucidate the temperature and pressure evolution processes during Earth's geological history.
- Pesudosection modeling on the hydrogen production of peridotite: Thermodynamic calculations were employed to simulate the serpentinization process of olivine, exploring the thermodynamic boundaries of the corresponding water-rock interactions.

RECENT RESEARCH HIGHLIGHTS

- Have determined that the involvement of the Yangtze Block in the subduction process around the Rodinia supercontinent can occur as early as 930 Ma ago.
- Utilize machine learning to conduct genetic mineralogical analysis and establish corresponding identification methods.
- Conduct metamorphic analysis of carbon bearing rocks using cross-sectional views and study the carbon cycle of orogenic belts in different eras.

POTENTIAL COLLABORATION RESEARCH

Best-fit collaborator areas:

- **1. In situ hydrogen production in shallow Earth: Comparative study of relevant thermodynamic boundaries and practical applications.**
- **2. Geological comparison between China and South Korea: Based on the pre Cambrian geological records of China and South Korea, a comparative study of the evolutionary history of the Precambrian and Precambrian supercontinents is conducted.**
- **3. Carbon cycle carbon storage research: Conduct an evaluation of the carbon cycle and carbon storage capacity at different tectonic positions during the Earth's evolution process.**

SELECTED RECENT PUBLICATIONS

- International Geology Review, 2026, Metamorphism and chronology of Neoproterozoic granulite facies metasedimentary rock in northwestern Yangtze Block and its tectonicimplications
- Geological Society of American Bulletin, 2026, Captured garnets reveal early Neoproterozoic metamorphism and long-lived active-margin evolution of the northwestern Yangtze Block during Rodinia assembly

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REPRESENTATIVE RESEARCH FIGURES / SCHEMES





