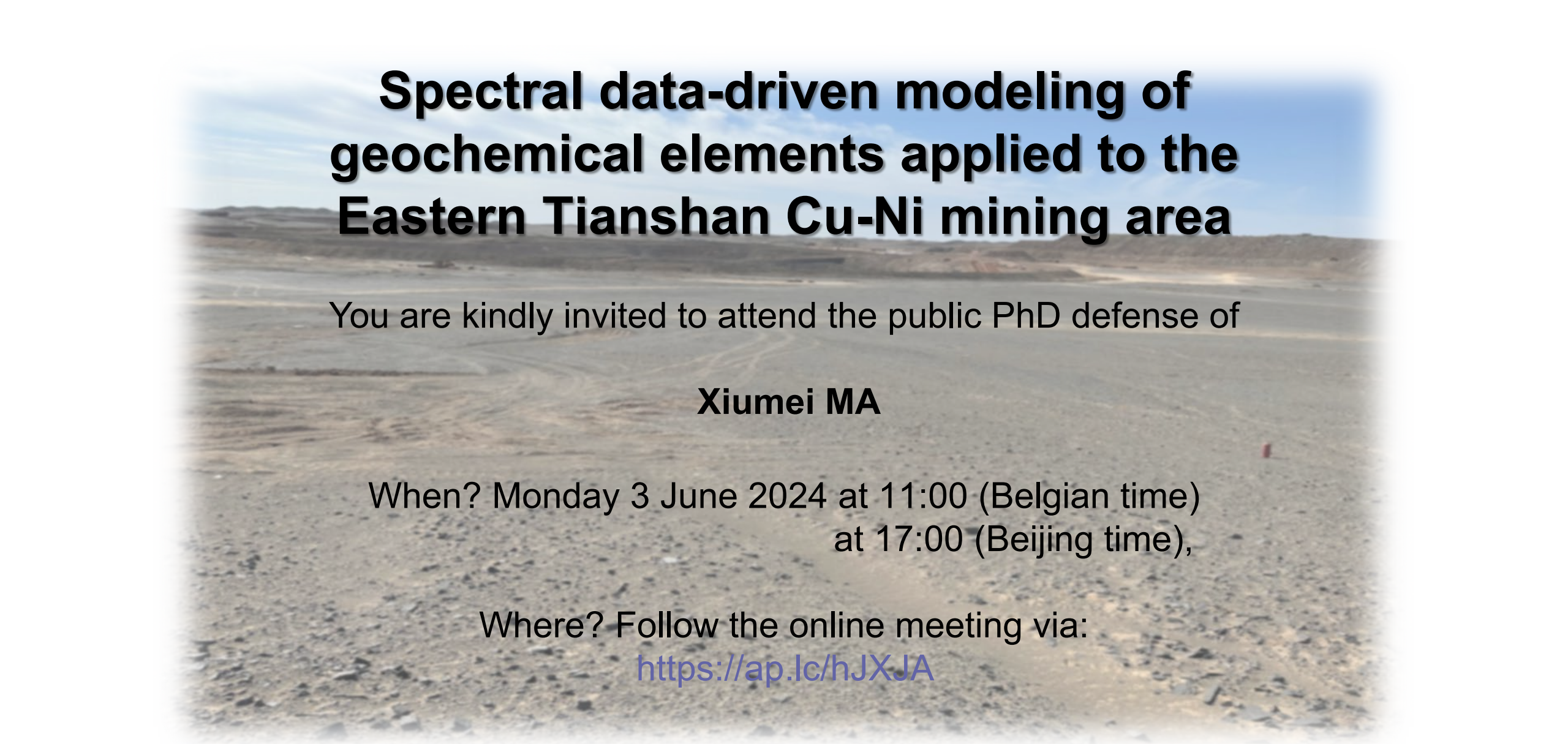

Spectral data-driven modeling of geochemical elements applied to the Eastern Tianshan Cu-Ni mining area

You are kindly invited to attend the public PhD defense of

Xiumei MA

When? Monday 3 June 2024 at 11:00 (Belgian time)
at 17:00 (Beijing time),

Where? Follow the online meeting via:
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Summary

Our study aims to construct a high-precision, generalized spectral data-driven model to be applied to Cu-Ni mining area for accurately locating the distribution of geochemical element anomalies. The results of Meta-analysis and Bayesian causal inference modeling show that the main factors affecting the inversion accuracy of geochemical elements are spectral transformation method, band optimization method and inversion algorithm. Then, we developed inversion model using the laboratory-satellite joint spectral data collected form Cu-Ni mining areas in Eastern Tianshan and the three models with the highest elemental inversion accuracy are Cu (SD-PCC-RF), Ni (ORI-PCC-ELM), and Cr (C_2-PCC-RF). The findings from this research are expected to offer valuable technical insights for Cu-Ni deposit exploration in similar regions of the Eastern Tianshan and propose innovative strategies for conducting effective geochemical exploration in challenging environments.

Examination Committee

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About the Author

Xiumei MA (1994) is a joint PhD candidate at the Department of Geography at Ghent University and University of Chinese Academy of Sciences. In 2016, she graduated from the Resources of Changan University and started her academic education at the University of Chinese Academy of Sciences. In 2020, she was started her PhD studies at Xinjiang Institute of Ecology and Geography, the Chinese Academy of Sciences, pursuing her doctorate at Ghent University. During her master's program, she mainly focused on the quantitative inversion study of Cu elements in mining areas based on laboratory spectra. In her doctoral program, her research mainly concentrated on spectral data-driven modeling of geochemical elements applied to the Eastern Tianshan Cu-Ni mining area