Geochronology，geochemistry and tectonic significances of the Diabase dikes in Niujuan silver-gold deposit，North China Craton

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Niujuan silver-gold deposit, located in the middle-eastern section of the northern margin of the North China Craton, is situated between the Pre-Mesozoic Shanghuangqi orogenic-magmatic belt and Meso-Cenozoic Guyuan volcanic basin in the central part of the Inner Mongolian Axis. Diabase dikes are outcropped widely with similar occurrences in the orefield and surrounding area, and they are mainly intruded into the host rock-coarse-grained biotite monzogranite. Zircon LA-ICP-MS U-Pb dating shows that the Disbase dikes intruded at 261.6±5.8Ma of Middle-late Permian which is consistent with the intrusion time of host rock(268.7±3.2Ma). Geochemically, the diabase contains SiO_2 between 49.47% and 51.43%, and it is characterized by high alkaline (K_2O+Na_2O=5.22~5.72%, Na_2O/K_2O=1.05~1.48), high content of TiO2(2.11~2.23%), low content of MgO (3.14~3.68%) and Mg# degree. REE study indicates that diabase is enriched in light rare earth elements with abundant rare earth elements, and the fractionation between LREE and HREE is not pronounced. Chondrite-normalised REE distribution pattern for the diabase displays right flat skewed shapes without obvious depletion of Eu. The diabase is rich in Ba while depleted HFSE(Zr、Hf、Ta、Nb、Ti) and LILE(Rb、Sr). All these characteristics in combination with the Zr-Y, Zr-Nb, Zr/Y-Zr, Ti/100- Zr-Y× 3, Ta/Hf- Th/Hf and Nb/Zr-Th/Zr diagrams indicate that the magma was derived from partial melting of the enriched mantle, and the diabase was formed in an intra-continent extension setting of the northern margin of the North China Craton during the late Hercynian, that is in harmony with post-orogenic intracontinental extension process after the collision suture between North China Plate and hyperplasia of the Mongolian fold belt belonged to south margin of the Siberia plate.