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黑龙江东部马家街群的岩石地球化学特征及其沉积时代 [点此下载全文](#)

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摘要:

位于黑龙江省东部的马家街群主体岩性为变泥质岩, 对其进行主量和痕量元素分析, SiO<sub>2</sub> 含量为61.5%-77.68%, Al<sub>2</sub>O<sub>3</sub> 含量为9.74%-21.08%, K<sub>2</sub>O含量为2.73%-6.34%, Na<sub>2</sub>O含量为0.1%-2.66%, (La/Yb)<sub>N</sub>=6.55-10.79, Eu/Eu\* =0.45-0.64, (Gd/Yb)<sub>N</sub>=1.28-1.94, 表明马家街群物源主要来自长英质岩石组成的后太古宙上陆壳, 并具有大陆岛弧性质。通过对马家街群下伏基底片麻岩进行锆石LA ICP MS U Pb定年, 11颗锆石的定年结果显示, <sup>206</sup>Pb/<sup>238</sup>U年龄为499-508Ma, 加权平均年龄为504±2 Ma (n=11, MSWD= 0.44); 定年的锆石晶形较好, 具震荡生长环带, 属典型的岩浆成因, 因此504±2Ma这一年龄代表了花岗岩片麻岩原岩形成时代, 而变质时代则更晚, 表明沉积在基底片麻岩之上的马家街群形成时代在晚寒武世之后。马家街群的地球化学特征及其下伏片麻岩年代学的特点, 反映了物源区可能来自于泛非期佳木斯地块与相邻地块拼合而成的稳定陆块。

关键词: [佳木斯地块](#) [桦南隆起](#) [马家街群](#) [泛非期](#) [古生代](#)

Geochemical Characteristics and Sedimentation Age of the Majiajie Group in Eastern Heilongjiang Province, China [Download Fulltext](#)

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Abstract:

Lithology of the Majiajie Group, located in eastern Heilongjiang Province, is dominated by low metamorphic argillaceous rocks. Major and trace elements analysis shows that content of SiO<sub>2</sub> is 61.5%-77.68%, Al<sub>2</sub>O<sub>3</sub> is 9.74%-21.08%, K<sub>2</sub>O is 2.73%-6.34%, Na<sub>2</sub>O is 0.1%-2.66%, (La/Yb)<sub>N</sub> is 6.55-10.79, Eu/Eu\* is 0.45-0.64, and (Gd/Yb)<sub>N</sub> is 1.28-1.94. All these features indicate that the source rock of the Majiajie Group is felsic rocks originating from the post Archean upper continental crust which belongs to continental island arc. The cathodoluminescence images of zircons selected from basal granitic gneiss show that they all have a clear oscillatory zonation and good crystal shape, which indicate they are typical of magmatic origin. The zircon LA ICP MS U Pb dating of spots indicates that their <sup>206</sup>Pb/<sup>238</sup>U ages range from 499 to 508Ma and that the weighted mean age of 11 analyzed spots is 504±2Ma. This result indicates the source rock of basal granitic gneiss is middle Cambrian in age while its metamorphic age should be much later than middle Cambrian. Therefore, the Majiajie Group's sedimentation started after Cambrian. The geochemistry of Majiajie Group and geochronology of basal granitic gneiss suggest that the source rock region was probably a stable continental block which was amalgamated by the Jiamusi Block and adjacent blocks during Pan African period.

Keywords: [Jiamusi block](#) [Huanan uplift](#) [Majiajie Group](#) [Pan Africa period](#) [Paleozoic](#)

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