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鲁西新泰孟家屯2.7Ga变质沉积岩与黑云斜长片麻岩锆石Hf同位素特征 点此下载全文

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摘要：

对出露于山东新泰孟家屯2.7Ga的孟家屯岩组中石榴石石英岩（M08）、含十字石石榴石黑云母石英片岩
（M03）（TTG质片麻岩）进行锆石Lu Hf同位素分析。石榴石石英岩锆石核部 176 Lu/ 177 Hf、
0.001730～0.002546、0.281249～0.281360，锆石变质边部 176 Lu/ 177 Hf、 176 Hf/
0.002070、0.281241～0.281318；含十字石石榴石黑云母石英片岩锆石核部 176 Lu/ 177 Hf、
为0.001334～0.002169、0.281226～0.281324，锆石变质边部 176 Lu/ 177 Hf、 176 Hf/
0.001375、0.281227～0.281309；黑云斜长片麻岩锆石 176 Lu/ 177 Hf、 176 Hf/ 177 Hf变
0.281186～0.281265。孟家屯岩组石榴石英岩、含十字石石榴石黑去母石英片岩中碎屑（岩浆）锆石和黑云斜长
(t)分别为3.75～7.26、2.31～7.26和3.21～6.27，同时T DM1 与其U Pb年龄非常接近，表明它们起源
域研究资料认为，2.7Ga是鲁西重要的一期构造岩浆热事件，也可能是华北克拉通重要的构造岩浆活动时期。变
对于核部岩浆锆石低 176 Lu/ 177 Hf、高 176 Hf/ 177 Hf，显示变质作用过程中石榴石
系有很大影响。

关键词：孟家屯岩组 变质沉积岩 黑云斜长片麻岩 锆石Hf同位素 构造岩浆事件

Hf Isotopic Compositions of Zircons from 2.7 Ga Metasedimentary Rocks and Biotite P
Mengjiatun Formation Complex, Western Shandong Province Download Fulltext

Du Lilin Yang Chonghui Zhuang Yuxun -

Institute of Geology, CAGS,Institute of Geology, CAGS,China Geological Survey and -

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Abstract:

Lu Hf isotopic compositions of zircons separated from the garnet quartzite(M08), staurolit
quartz schist(D242 Y2) of the Mengjiatun formation complex and biotite plagioclase gneiss(M03) o
Mengjiatun village, Xintai City, western Shandong Province, have been analyzed through the La MC
rocks mentioned above were formed 2.7Ga ago. Among them, the magmatic cores of detrital origin zi
give the 176 Lu/ 177 Hf and 176 Hf/ 177 Hf ranges 0.001730～0.002546 and 0.2812
and the zircon rims of the sample have the 176 Lu/ 177 Hf and 176 Hf/ 177 Hf ra
0.281241～0.281318, respectively. The magmatic cores of detrital origin zircons from the stauroli
quartz schist yield the 176 Lu/ 177 Hf and 176 Hf/ 177 Hf values 0.001334～0.00
respectively, and the metamorphic rims of the zircons from the schist 0.000445～0.001375, 0.28122
respectively. While the ratios of magmatic zircons from the biotite plagioclase gneiss are 0.00
0.281265, respectively. ε Hf (t) values of the magmatic (detrital)zircons from garnet qua
bearing garnet biotite quartz schist of the Mengjiatun formation complex and the orthogneiss ar
3.21～6.27, respectively. In addition, the T DM1 ages of the zircons of all the samples are
Pb ages, suggesting they were derived from partial melting of the juvenile crustal materials. C
geology information, the authors deduce that the 2.7Ga magmatism is an important magmatic tectono
Shandong Province area, even in the North China Craton. Many zircons in the metasedimentary rocks
metamorphic overgrowing rims have lower 176 Lu/ 177 Hf but higher 176 Hf/ 177 H
magmatic cores, demonstrating the substantial influence of the metamorphic garnet on the Lu Hf i

Keywords:Mengjiatun formation complex Metasedimentary rocks biotite plagioclase gneiss zircon
magmatic event