

相振群, 李怀坤, 陆松年, 周红英, 李惠民, 王惠初, 陈志宏, 牛健. 2012. 泰山地区古元古代末期基性岩墙形成时代厘定——斜锆石U-Pb精确定年. 岩石学报, 28(9): 2831-2842

泰山地区古元古代末期基性岩墙形成时代厘定——斜锆石U-Pb精确定年

作者	单位
相振群	中国地质大学, 北京 100083 ; 天津地质矿产研究所, 天津 300170
李怀坤	天津地质矿产研究所, 天津 300170
陆松年	天津地质矿产研究所, 天津 300170
周红英	天津地质矿产研究所, 天津 300170
李惠民	天津地质矿产研究所, 天津 300170
王惠初	天津地质矿产研究所, 天津 300170
陈志宏	天津地质矿产研究所, 天津 300170
牛健	泰山风景名胜区管理委员会, 泰安 271000

基金项目: 本文受中国地质调查局国土资源大调查项目(1212011120155、1212011120130)和国土资源部公益性行业科研专项(200911043-15)联合资助

摘要:

华北克拉通经过吕梁运动在~1.85Ga完成克拉通化,之后从1.80Ga至1.32Ga发育大量标志哥伦比亚超级大陆裂解的地质记录。本文利用高精度热电离质谱法(ID-TIMS)和离子探针质谱法(SIMS),对发育于泰山红门景区的辉长辉绿岩墙进行了斜锆石U-Pb同位素年龄测定,获得了在误差范围内一致的辉长辉绿岩侵位年龄 $1621.1 \pm 8.8\text{Ma}$ (ID-TIMS)和 $1632.4 \pm 4.2\text{Ma}$ (SIMS)。该研究成果修正了前人对泰山红门景区辉长辉绿岩侵位年龄的模糊认识,证明了红门景区辉长辉绿岩是与华北克拉通南缘龙王(石童)碱性花岗岩、华北克拉通北缘大红峪期碱性火山岩和岩床同期的岩浆事件的产物,是哥伦比亚超级大陆初始裂解作用在华北克拉通的岩浆作用响应。

英文摘要:

A series of 1.80~1.32Ga geological events marking the break-up of the Columbia Supercontinent took place in the North China Craton after cratonization by ca. 1.85Ga through the Lüliang Orogeny. Among them mafic dike swarms are one type of representative geological records formed during the initial rifting period of the Columbia Supercontinent. The gabbro-diorite dike occurred in the Hongmen Scenic Region of Mount Tai, western Shandong Province, was probably formed during the initial rifting period of Columbia, but with very poor age constraints. By means of two modern dating methods of ID-TIMS and SIMS, the authors of this paper analyzed baddeleyite U-Pb isotopic ages of the gabbro-diorite dike; two consistent ages with error were obtained, $1621.1 \pm 8.8\text{Ma}$ (ID-TIMS) and $1632.4 \pm 4.2\text{Ma}$ (SIMS). This achievement leads to amendment of the previous imprecise emplacement timing of the Hongmen gabbro-diorite dike. It is demonstrated that the Hongmen gabbro-diorite dike is coeval with the Longwangzhuang alkaline granite in the southern margin of the North China Craton and the Dahongyu Stage alkaline volcanics and sill in the northern margin of the North China Craton; confirmed to be the product during the initial rifting period of the Columbia Supercontinent.

关键词: [辉长辉绿岩墙](#) [斜锆石U-Pb测年](#) [泰山](#) [华北克拉通](#)

投稿时间: 2011-12-25 最后修改时间: 2012-04-30

[HTML](#) [查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

