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浙东南石平川花岗岩体LA ICP MS锆石U Pb年代学及构造意义 [点此下载全文](#)

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DOI:

摘要:

石平川钾长花岗岩体位于浙江沿海火山岩带的中南部, LA-ICP MS锆石U Pb定年结果为 102.5 ± 1.2 Ma (MSDW=2.1), 形成于早白垩世末期。岩相学及化学成分显示其属高钾钙碱性岩系, 具有高硅富钾和铝低铁、镁、磷和钛特征, SiO₂ 含量为74.79%~77.79%, K₂O为4.26%~7.97%, 铝指数A/CNK=0.98~1.10, 属准铝质—弱过铝质岩石。富集Rb、Th、U和K, 亏损Sr、Ba、Nb、P和Ti, REE具有中等负Eu异常(Eu/Eu* = 0.33~0.50), 总体呈现LREE富集的右倾“V”型配分模式。岩石 $[n(87\text{Sr})/n(86\text{Sr})]$ 值为0.70801~0.71012 ($t=102.5$ Ma), $\epsilon_{\text{Nd}}(t)$ 值为-8.63~-8.76, 显示壳—幔混合成因特征。矿物组成及地球化学特征显示石平川岩体为高演化I型花岗岩。微量元素显示石平川岩体具有后碰撞花岗岩的特征, 侵位于早白垩世末期的张性构造环境, 其形成可能与印度板块北向漂移所导致的古太平洋板块碰撞弧后引张构造有关。

关键词: [LA ICPMS锆石U Pb年代](#) [高演化I型花岗岩](#) [弧后伸展](#) [石平川花岗岩](#) [浙江](#)

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Abstract:

The Shipingchuan K feldspar granite is situated in south—central volcanic belt of southeastern Zhejiang Province. LA-ICP MS zircon U Pb dating yields a weighted mean $^{206}\text{Pb}/^{238}\text{U}$ age of 102.5 ± 1.2 Ma (MSDW=2.1) for the Shipingchuan granite intrusion, implying its end of early Cretaceous crystallization time. Petrography and chemical compositions show that it belongs to high K calc alkaline series characterized by high silicon, enriched in potassium and aluminum but depleted in iron, magnesium, phosphorus and titanium. SiO₂ and K₂O contents range from 74.79% to 77.79% and 4.26% to 7.97% respectively. A/CNK values vary from 0.98 to 1.10, indicating a metaluminous to weakly peraluminous character. The rocks are enriched in Rb, Th, U and K, but depleted in Sr, Ba, Nb, P and Ti. REEs are characterized by intermediate negative Eu anomalies with Eu/Eu* = 0.33-0.50 and exhibit right dipping “V” patterns with LREE enrichment. $[n(87\text{Sr})/n(86\text{Sr})]$ and $\epsilon_{\text{Nd}}(t)$ values ($t=102.5$ Ma) of the Shipingchuan intrusion range from 0.70801 to 0.71012 and -8.76 to -8.63 respectively, showing the intrusion is the result of mixing by crustal and mantle materials. Mineralogy and geochemistry suggest that the Shipingchuan K feldspar granite intrusion is a highly fractionated I type granite. Trace elements features display that the pluton was a post collisional granite and formed in an extensional tectonic setting in the end of early Cretaceous. These results indicate the Shipingchuan granite is related to back arc extension due to high angle subduction of the paleo Pacific plate, caused by northward movement of Indian plate.

Keywords: [LA ICP MS zircon U Pb dating](#) [highly fractionated I type granite](#) [back arc extension](#) [the Shipingchuan granite](#) [Zhejiang province](#)

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