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广西大厂笼箱盖复式岩体的LA-MC-ICP-MS锆石 U-Pb年龄及其地质意义

作者	单位
梁婷	长安大学地球科学与资源学院 西部矿产资源与地质工程教育部重点实验室,西安 710054
王登红	中国地质科学院矿产资源研究所,北京 100037
侯可军	中国地质科学院矿产资源研究所,北京 100037
李华芹	宜昌地质矿产研究所,宜昌 443003
黄惠明	广西华锡集团有限责任公司,柳州 545006
蔡明海	广西大学资源与环境学院, 南宁 530004
王东明	长安大学地球科学与资源学院 西部矿产资源与地质工程教育部重点实验室,西安 710054

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摘要：

广西大厂矿田中部的笼箱盖岩体是一个多期次侵入的复式岩体,尽管前人对其中个别阶段岩体进行过年龄精测,但迄今还没有对多期岩体进行过系统的年代学精测。本文在运用阴极发光技术对岩体中锆石进行细致的内部结构分析的基础上,利用LA-MC-ICP-MS锆石U-Pb原位定年方法,系统测定了岩体中单颗粒锆石的$^{206}Pb/^{238}U$年龄,结果显示出,笼箱盖复式岩体形成经历了103.8~102Ma、96.6~93.86Ma、90.1~85.1Ma 3期活动,其中96.6~93.86Ma为主体形成时期,其第一阶段形成中细粒含斑黑云母花岗岩(96.6±2.5Ma)、细粒含斑的黑云母花岗岩(94.3±2.2Ma),第二阶段形成中细粒等粒状黑云母花岗岩(96.1±2.0Ma),第三阶段形成似斑状黑云母花岗岩(93.86±0.84Ma)。这些岩体之间界限清晰、无明显冷凝边,说明岩浆活动是一种连续的脉动过程。大厂矿田的锌铜矿体、锡多金属矿体的形成主要与笼箱盖复式岩体的第二期岩浆活动密切相关,成矿过程在短暂时间完成。笼箱盖复式岩体的形成时期与中国东部110~80Ma大规模成矿过程是吻合的,成岩成矿作用可能与岩石圈伸展作用有关。

英文摘要：

The Longxianggai pluton is a multiple-intruded in the middle of the Dachang ore field of Guangxi. Although the former researchers had carried out some dating on the rock intruded in some stages, so far systematic chronology study about its multi-stage magmatic intrusions has not done. Based on analyzing the interior structures of zircons by the CL technology, in-situ zircon U-Pb dating was performed with LA-MC-ICP-MS and reliable $^{206}Pb/^{238}U$ age data in fine-grained zircon were obtained. The results show that Longxianggai pluton was formed in three staged, that is, 103.8~102Ma,96.6~93.86Ma and 91~85.1Ma, and 96.6~93.86Ma is the main magmatic period. In the first stage, medium-fine-grained biotite granite with porphyritic (96.6±2.5Ma) and fine-grained biotite granite with porphyritic (94.3±2.2Ma) was formed. In the second stage, medium-fine-grained equigranular biotite granite (96.1±2.0Ma). In the third stage, the porphyraceous biotite granite (93.86±0.84Ma) was formed. The boundary between the rocks is clear and has no chilled margin, which indicates that magmatism forming Longxiagngai pluton is a continuous pulse process. The formation of zinc-copper ore body and tin-polymetallic ore body is closely related with the second magmatic period of the Longxianggai pluton and the mineralization process was completed in a short time. This information period of the Longxianggai pluton is the same as the large-scale mineralization of 110~80Ma in eastern China, and its digenesis and mineralization may be related to lithosphere extension.

关键词：LA-MC-ICP-MS 锆石U-Pb年龄 成岩期次 笼箱盖复式岩体 广西大厂

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