

mixture of magmatic water and meteoric water. At post-ore stage hydrothermal solution is derived from meteoric water, as can be concluded from its  $\delta^{18}\text{O}$  values of  $-4.72$ — $-7.88\%$ , which is roughly consistent with the  $\delta^{18}\text{O}$  values of gallery water and meteoric water in the mining district.

$\delta^{34}\text{S}$  values of pyrite are  $-0.8$ — $+4.6\%$  and  $\delta^{13}\text{C}$  values of calcite are  $-7.57$ — $-9.79\%$ , implying a probable derivation of sulfur and carbon from the magma. lead isotope composition shows that the initial lead is a mixture of anomalous lead and common lead, which denotes a gradual entry of the radiogenic lead into the uranium-bearing solution at pre-ore stage.

The calculation for gain or loss of uranium in percentage indicates that the country rocks lose uranium during the mineralization process by 27—67%. The  $t_1$  ages calculated by the U-Pb three-stage model and the U-Pb episodic gain model are 560.87Ma and 500.05Ma respectively, which demonstrates that the uranium source is related to Cambrian metasedimentary sequence and that the 6217 ore deposit and the D granite probably have identical uranium derivation. It is believed therefore that the uranium of the ore deposit is derived from multiple sources: both from the leaching of uranium-rich D granite by the hydrothermal solution and from the uranium-rich post magmatic solution.

## “南岭地区有色、稀有金属矿床的控矿条件、成矿机理、分布规律及成矿预测的研究”评审会在北京召开

1986年1月26日至2月1日由地质矿产部科技司和中国地质学院组织,聘请中国科学院、有色工业总公司、核工业部、教育委员会和地矿部等单位的同行专家,对“南岭地区有色、稀有金属矿床的控矿条件、成矿机理、分布规律及成矿预测的研究”报告进行了系统讨论和评审。该项目属国家“六五”科技重点攻关项目,其中包括五个二级研究专题和七十六个三级研究课题。由地矿部所属的三个研究所、两个院校和五个省局约400多位科技人员参加,经过四年多的奋战,提前圆满地完成了任务。

在评审过程中,对本项研究工作给予了全面、高度的评价。认为该研究项目属于多学科多层次,采用点面结合协同攻关的系统组织管理,应用近代测试技术和研究方法,为南岭地区积累了丰富、系统的第一性资料和近代地球化学测试数据。在成矿理论和区域成矿研究方面取得了重要的新进展,提出了有价值的找矿标志、找矿方向和远景预测区。该项成果已达到国内先进水平,在其中某些领域,如应用“耗散结构”理论对成矿作用与时空结构作动力学分析,若干矿田构造和机构控矿规律,花岗岩岩石学和地球化学的系统研究,沉积盆地演化过程中构造-岩相-成矿作用及层相位控矿因素的综合分析,与花岗岩有关的矿床的成矿系列以及蚀变模式和蚀变链的研究等方面已经达到了国际先进水平。

在应用近代测试和研究方法方面有所创新,为探讨成岩成矿的物理化学条件、物质来源(下转第52页)

through the capillary holes which are equivalent to these particles in size. The field of flowing metallogenic fluids is a relatively closed fracture system with complicated geometric configuration, and during the ore-forming process, pressure, temperature and such properties of ore-forming fluids as viscosity, density and flow speed vary continuously. It is therefore conceivable that the Leiruo number of the ore-forming flowage is not a constant and that the flowage, in addition to the form of laminar flow, is characterized by local and over-all evolutionary variations whose process might be in the order of torrent—laminar flow—motionless. Wolframite particles are considerably different from the media in density, and the laminar flow is unable to move the mineral particles on. Therefore, wolframite and other metallic minerals are crystallized out instead of being formed through accumulation of mineral particles carried by laminar flow as a result of collision with walls. The concentration difference theory defines the concentration as number of identically-sized mineral particles in unit volume of initial hydrothermal fluids. This definition is scientifically unacceptable, because no mineral particles occur in initial hydrothermal fluids, and hence the transportation zonation due to concentration differences of mineral particles derived from this definition is inconsistent with the practical situation of vein type tungsten deposits.

It is obvious that the four component parts (mineral particles, laminar flow, concentration differences and transportation) making up the theory of transportation zonation due to concentration differences of mineral particles are not established on the solid theoretical and practical ground. This theory even has many methodological doubts. The author thus feels sure that the so-called "transportation zonation due to concentration differences of mineral particles" will be completely discarded.

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和成因机制提供了定量信息。如:运用“写实”方法和卫片影象编制的1:100万南岭地区地质构造图;对控矿构造体系、环形构造和北西向构造的归纳总结;验证、丰富和发展了维斯切里乌斯的“地球化学过程的基本定律”,提出了化学元素“丰度”的新定义和新计算方法,基本上消除了后期叠加影响,求出了三个地球化学分区地层中化学元素真实丰度的最佳近似值;运用同位素年代新资料对花岗岩的时代作了进一步划分,有效地尝试运用Rb-Sr“区域等时线”和稀土定量成因模式等新方法,论证了成矿花岗岩主要由壳源物质部分熔融形成;运用成矿系列的观点对花岗岩类有关矿床编制了1:200万成矿系列图,为研究矿床成因、成矿规律和成矿预测提供了一条新途径;运用基底断裂带、岩相带和成矿带三位一体的新思路划分泥盆系层控矿床类型并建立了成矿模式。在矿床矿物学的研究领域中有47种矿物属国内和工作区内首次发现。以上成果均填补了南岭地区在这些领域中的空白。

(张如玉)