

**ROLE OF THE SUPERCRITICAL FLUID IN THE PROCESS OF
GRANITIC DIAGENISM AND METALLIZATION: EVIDENCES
FROM GRANITIC REE, NB-TA DEPOSIT IN XIANGHUALING
AREA, HUNAN PROVINCE, CHINA**

Qiu Ruizhao^{1,2}, Zhou Su^{1,2}, Chang Hailiang¹, Du Shaohua¹

1. Yichang Center of Geology Survey Bureau of China, Yichang, 443003 2. Geology Science and Resource Academy, China University of Geosciences, Beijing, 100083

Nb-Ta deposit in Xianghualing area is a sort of typical deposit in south China. After summarizing the general characteristics of REE, Nb-Ta deposits in south China, authors seriously and systematically study its fluids for the first time. Inclusions' data indicate Xianghualing granitic system belongs to F-Cl-H₂O-CO₂ fluid and H₂O, CO₂ is in supercritical fluid state during the process of magmatic evolution. After defining the three families components (active, efficacious active and indolent component) in granite melt based on the mobility, the authors discuss that a series of physical and chemical properties change systematically, which includes viscosity, inner pressure, structure, mobility and contents of components in magmatic system. Supercritical fluids play a important role (the interaction of fluid-melt and fluid-rock) during the process of magmatic evolution. It has been proved by the result of Rama measuring. In the mean while, REE, Nb, Ta and other ore-forming elements become richer and richer and cause the metallization as the supercritical fluid concentrates progressively during the magma's evolution and as the emanation-differentiation occur within the magma system. Metallization and diagenism show a successive process. The contents of F, H₂O⁺ et al. fluid component control the evolutionary degree, mica evolution even metallization in the magmatic system. The formation of granitic Nb-Ta deposit in Xianghualing area is in fact a process of differentiation or self-organization in magmatic system under the action of supercritical fluid.