

**Application of Cathodoluminescence Microscopy in Metapelites:
Plagioclase Growth Model in a Staurolite-zone Schist,
Imjingang Belt, Korea**

Jin-ho Ahn, Moon-sup Cho

Department of Geological Sciences, Seoul National University

We studied garnet-biotite schists of the Imjingang Belt, Korea, to model the plagioclase growth using cold-cathodoluminescence (CL) technique. The CL intensity and color of plagioclase are well correlated with its composition. This result permits us not only rapid determination of plagioclase compositional zoning but also efficient identification of minute plagioclase inclusions in garnet, on a thin-section scale without extensive chemical analyses. The growth model of plagioclase deduced from the CL microscopy is as follows: (1) Calcic plagioclase ($>An_{80}$) occurs as relict phase not only in garnet porphyroblasts but also in the matrix. The matrix plagioclase grains are commonly armored by intermediate plagioclase (An_{50-80}); (2) Intermediate plagioclase overgrows both sodic (An_{30-50}) and calcic plagioclases either continuously or discontinuously. It also occurs as isolated grains apparently grown concomitantly with garnet; (3) Most of matrix plagioclase grains are either reversely or normally zoned, passively orientated, and often cut by other phases. These observations suggest that the outer part of garnet is in equilibrium with syn-tectonic, intermediate plagioclase. Hence, we conclude that the CL microscopy could provide a wealth of information not only on deciphering P-T evolution but also on microfabric analysis of fine-grained metapelites.