# Metamorphic and Microstructural Evolution of Orthogneisses and Granulites of the Eger Complex (NW Bohemian Massif) – Record of Progressive Granulitization of the Lower Crust?

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In contrast to traditional models of the western margin of the Bohemian Massif, migmatitic orthogneisses, granulitic gneises and granulites of the high-grade Eger complex have been recently reinterpreted as a lower-crustal rocks exhumed from the bottom of the Teplá-Barrandian unit during Lower Carboniferous collision (Konopásek and Schulmann 2005). Recent mapping has shown the presence of high-grade mylonitic orthogneisses in the centre of this unit surrounded by large volumes of almost fabric-free felsic granulitic gneisses and granulites. Field and laboratory observations suggest continuous microstructural transition from banded textures to non-foliated granulitic gneisses and granulites. Microstructural evolution of orthogneisses shows progressive destruction of foliated structure via crystallization of new phases within monomineralic bands of K-feldspar, quartz and plagioclase resulting in complete disappearance of macroscopic planar fabric.

Orthogneisses, granulitic gneisses and felsic granulites are often almost identical in the whole-rock chemistry, but they show substantial differences in mineralogy. Prevailing assemblage in orthogneisses and granulitic gneisses is represented by Grt-Bt-Ms-Plg-Kf-Qtz-Melt. Some samples show an assemblage Grt-Ky-Bt-Ms-Plg-Kf-Qtz-Melt and probably document progressive mineralogical evolution of orthogneisses towards felsic granulites with high-pressure association Grt-Ky±Bt-Plg-Kf-Qtz-Melt. Thermodynamic modelling of the stability field of the assemblage Grt-Bt-Ms-Plg-Kf-Qtz-Melt in orthogneisses shows metamorphic conditions of ~700 °C at 9.5 kbar, whereas PT conditions of equilibration of the assemblage Grt-Ky±Bt-Plg-Kf-Qtz-Melt in granulites are higher (~800 °C at 14 kbar).

Field and microstructural observations together with estimates of metamorphic conditions suggest, that the heterogeneity of the Eger complex may be the result of incomplete granulitization of felsic lower crust due to a short time span between maximum burial of the unit and its rapid exhumation during Lower Carboniferous.

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## References

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# Alpine Tectonometamorphic Evolution of the Uppony and Szendrő Paleozoic (NE Hungary)

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The Szendrő and Uppony Mountains in NE Hungary form two smaller, pre-Tertiary basement exposures in the so-called Gemer-Bükk region which comprises the innermost tectonic units of the Inner Western Carpathians and the neighbouring areas. The known stratigraphic range of these Early Paleozoic sequences extends from the Middle Devonian to the Middle Carboniferous including mostly platform and pelagic carbonates and a flysch-like sequence (Szendrő Mts.), furthermore clastic rocks of unknown age (Ord-Sil?) and strongly altered, basic volcanics and volcano-sediments. (For a more detailed stratigraphical and lithological description see Kovács 1992.)

The ductile tectonic evolution of these Lower Paleozoic sequences was studied by means of classical structural field methods and detailed microtectonic investigations. Structural investigations reveal that both units suffered a complex, polyphase folding. Regarding also available metamorphic petrological