## **Oszillatory Biomineralization in Mollusc Shells**

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Impurity distribution in mollusc shells of the species Patella crenata, Fissurella, Littorina, Nerita, Nucella and Concholepas was studied using microprobe analysis (CAMECA-SX 100). In detail the Mg content and its spatial distribution in calcite as well as the Sr distribution in aragonite were investigated. The Sr distribution has been determined qualitatively, Mg and its distribution was measured quantitatively. Oscillatory growth and the corresponding modulation of Mg in the order of 0.2 - 1.65 weight percent was found. Patterns of distributed impurities were correleted with shell structures and growth directions. Nanoparticle orientations, growth directions and impurity patterns are analysed and show complex correlations.

Structural information was obtained via TEM, IR and Raman spectroscopy. The oszillatory pattern of the impurity distribution and related strain may lead to an increased thermodynamic stability of the systems which is supported by theory [1].

[1] Lee W.T., Salje E.K.H., *European Physical Journal B*, 2000, **13**, 395. Keywords: zone structure, nanostructures, carbonates