

NEW MAGNETOELECTRICS AND MULTIFERROICS

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The research activities of the Crystallography group in the frame of the SFB 608 are focused on the search and development of new potential multiferroics and magnetoelectrics, their growth to large high-quality single crystals by various methods and the characterisation of their basic macroscopic properties, particularly magnetic susceptibility, dielectric and pyroelectric properties. The talk will present our recent investigations of members of the pyroxene family ($A = \text{Li, Na, X} = \text{Si, Ge}$ [1]) with an emphasis on the analysis of phase relations of these incongruently melting compounds – a mandatory pre-requisite for successful single crystal growth. Further, results of the investigation of the transition metal tungstate $\text{NaFe}(\text{O})_2$, a structural relative of the multiferroic [2-4] with an ordered wolframite-type structure are given. Grown single crystals (see figure) of this compound with peritectic decomposition for the first time give access to its dielectric and pyroelectric characterisation including the determination of the anisotropy of these properties. First results of a pyroelectric characterisation of copper(II) vanadate of the system CuO- will also be reported. Untwinned single crystals were grown by closed system chemical transport reaction growth.



References

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