



Fully automated measurement of field-dependent AMS using MFK1-FA Kappabridge equipped with 3D rotator

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Low-field magnetic susceptibility of paramagnetic and diamagnetic minerals is field-independent by definition being also field-independent in pure magnetite. On the other hand, in pyrrhotite, hematite and high-Ti titanomagnetite it may be clearly field-dependent. Consequently, the field-dependent AMS enables the magnetic fabric of the latter group of minerals to be separated from the whole-rock AMS. The methods for the determination of the field-dependent AMS consist of separate measurements of each specimen in several fields within the Rayleigh Law range and subsequent processing in which the field-independent and field-dependent AMS components are calculated. The disadvantage of this technique is that each specimen must be measured several times, which is relatively laborious and time consuming.

Recently, a new 3D rotator was developed for the MFK1-FA Kappabridge, which rotates the specimen simultaneously about two axes with different velocities. The measurement is fully automated in such a way that, once the specimen is inserted into the rotator, it requires no additional manipulation to measure the full AMS tensor. Consequently, the 3D rotator enables to measure the AMS tensors in the pre-set field intensities without any operator interference. Whole procedure is controlled by newly developed Safyr5 software; once the measurements are finished, the acquired data are immediately processed and can be visualized in a standard way.