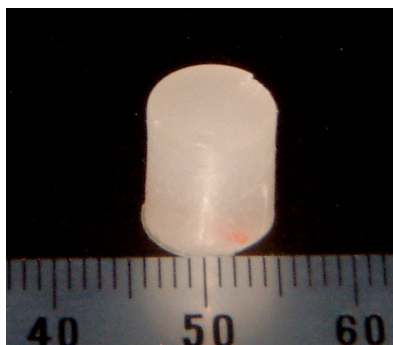
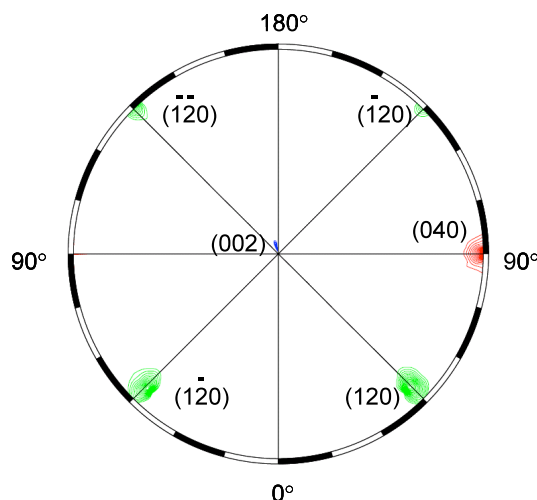


Pseudo single crystal method for diffraction study

擬単結晶法の回折法への応用



Pseudo single crystal
of L-alanine



Pole figure for neutron diffraction

For a successful determination of crystal structure by diffraction methods including X-ray and neutron methods, it is essential to grow a large single crystal appropriate for the respective methods. Requirement for crystal size is especially severe for neutron diffraction methods: a single crystal of 2 mm size is required. In many cases, this requirement is difficult to be satisfied. We have proposed a third approach, pseudo-single crystal method, by which a powder sample is converted to a pseudo single crystal where individual crystallites are aligned three-dimensionally, giving rise to diffraction spots equivalent to those obtained from a real large single crystal.

Graduate School of Agriculture, Kyoto University: T. Kimura, F. Kimura, K. Matsumoto,
R. Kusumi

IMR, Tohoku University: K. Takahashi, K. Watanabe

Reference: F. Kimura, T. Kimura, K. Matsumoto, N. Metoki, “Single-Crystal Neutron Diffraction Study of Pseudo Single Crystal Prepared from Microcrystalline Powder”, *Cryst. Growth Des.* **10**, 48 (2010); T. Kimura, C. Chang, F. Kimura, M. Maeyama, “The pseudo-single-crystal method: a third approach to crystal structure determination”, *J. Appl. Crystallogr.* **42**, 535 (2009).

回折法による結晶構造解析には大きな単結晶が必要であるが、多くの場合、所定のサイズの結晶が得られない。結晶サイズの問題は特に中性子回折においては重要で、2 mm 角の単結晶が必要といわれている。我々が開発した擬単結晶法(粉末結晶を3次元配向させる)を用いるとサイズの問題をクリアすることができる。

京都大学大学院農学研究科：木村恒久，木村史子，松本賢司，久住亮介
東北大学金属材料研究所：高橋弘紀，渡辺和雄