

Abstract Submitted
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Reevaluation of the precursor decay anomaly in single crystal lithium fluoride YUKIO SANO¹, TOMOKAZU SANO, Osaka University — The precursor decay anomaly in single-crystal lithium fluoride has been reevaluated by estimating dislocation densities along the Sano's decay curve [Sano, J. Appl. Phys. 85, 7616 (1999)] that are much lower and slower than the Asay's decay curve [Asay et al., J. Appl. Phys. 43, 2132 (1972)]. It is demonstrated that the density at the leading edge of the follower depends only on the slopes of the decay curves for particle velocity and stress, irrespective of the form of the follower and the slope at the leading edge. The maximum dislocation density at the beginning of the decay process is about 1/22 times as large as that estimated along the Asay's decay curve. Thus, the anomaly is reduced significantly. In addition, by estimating the density at the rear of the precursor, it is also shown that a large number of dislocations are multiplied in the vicinity of the leading edge of the follower. This increase in dislocation may be responsible for the multiplication of dislocations at the subgrain boundaries in the bulk as well as that of initial dislocations in the bulk.

¹Professor emeritus of Kobe University of Mercantile Marine

Tomokazu Sano
Osaka University

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