

review from referee 1

Referee 1 attached the following notes to their review.

Rapport on manuscript uv5023
Taxonomy of lattice reduction.
Lawrence C Andrews and Herbert J Bernstein

Current manuscript suggests brief description of various approaches to the choice of reduced cells of crystal lattices and associated reduction methods. In fact, the problem of reduction for lattices has much more general mathematical meaning and consists in finding conditions on parameters of an “elementary cell” allowing to find for any lattice the unique (in certain sense) frame characterizing the elementary cell. The application to classification of 3-dimensional crystal lattices is an important physical problem and it is certainly very useful for specialists in crystallography to adapt and to follow terminology and the mathematical results formulated over more than 250-years history of such celebrated mathematical problem.

After reading the current manuscript, I asked myself: Are authors familiar with important paper by B. N. Delone, R. V. Galiulin, M. I. Shtogrin, published in Russian as appendix to the book “Огюст Бравэ, Избранные труды. Кристаллографические этюды, Классики науки”, Наука, Ленинград, 1974, pp. 309-415, or with its more or less equivalent English version B. N. Delone, R. V. Galiulin, M. I. Shtogrin, “The types of Bravais lattices”, J. Soviet Math., 4:1 (1975), 79–156. I believe that rereading B.N. Delone et al. paper can help authors to make more precise and more clear their statements about reduction and conditions imposed on frame parameters, whereas the reference to this 50-years old publication will certainly allow to young researchers to see better the history of the reduction problem.

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Journal: Acta Crystallographica Section A: Foundations and Advances

Paper: uv5023

Authors: Lawrence C Andrews* and Herbert J Bernstein

Title: Taxonomy of lattice reduction

This paper describes an attempt is made to make more explicit the relationships of the various types of unit cell reduction used in crystallography.

Ten methods are described in sequence included in alphabetical order of the authors. It is noticeable that the latest date for the references of the methods is 1960 and many are from the 19th century. So I doubt the timeliness and the relevance to crystallographers of this contribution.

However the methods are well described and the relationships between them are made clear.

The authors should consider sorting these entries by date (earliest first) so that progress in unit cell reduction theory could be made clearer.