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# Unit cells considered in polar coordinates

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abstract

## 1. Introduction

The representation of the crystal lattice parameters as *a*, *b*, *c*, $\alpha$, $\beta$, and $\gamma$ dates from early in the 20th century. The association that *a* is opposite to $\alpha$, etc. is at least that old.

Delone *et al.* (1975) emphasized the relationship of the "opposite" Selling scalars in the Bravais tetrahedron representation of lattice.

Andrews *et al.* (2019) took the association one step farther, combining the "opposite" pairs of the 6 Selling scalars into the 3 complex coordinates.

The above ideas are here carried to another representation of lattice parameters. Taking the concept that the dimension *a* is related to the angle $\alpha$, etc. those pairs are considered to be 3 points represented in polar coordinates: ($a$,$\alpha$), ($b$,$\beta$), and ($c$,$\gamma$).

## 2. Notation

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## 3. Summary

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## 4. Availability of code

The $C^{++}$ code for $\mathbf{C^3}$ and related software tools is available in github.com, in `https://github.com/duck10/LatticeRepLib.git`. The program Radial uses the required files.

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