

Standardization of Materials R&D Data Schema and Keywords

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Abstract

Systematically structured materials research data is not only major R&D asset but basic requirement for materials design by data driven methods. It would be thus essential for efficiently retrieving the materials data from various sources to standardize the data keywords and specify the data type and unit of numeric data. Furthermore, materials design by machine learning necessitates the information of the relationship between materials properties and composition, structure or process conditions. Well-structured materials research data should be thus collected and managed to include this relationship. Expert Committee for Standardization of Materials Research Data in Korea suggested the harmonized materials data structure that can consistently manage the materials research data of various sub-disciplines. The committee is aiming at the standardization of data schema and vocabularies that can embrace the process-structure-property relationship in wide scope of materials sub-disciplines. The concept of “materials system” was used for standard schema of materials research data, so that the intrinsic data of materials is separated from the data closely related to specific application. This strategy enables one to build the harmonized data structure for wide range of materials research, that would result in improved interoperability of the data. Based on this data schema, the Committee published a dictionary of structure materials data keywords. This presentation will introduce the standard schema and keywords being developed in Korea. It will be discussed about the compatibility with the data structures worldwide for promoting FAIR principles of materials research data.

References

[1] <https://github.com/krlee227/MatResData-Standard-Committee>

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