

Data and Expressions for Science and Engineering into e-Journals

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Abstract:

e-Journals are usually published in PDF format in order to fit display or printout, some e-Journal platforms implement to link to references, but figures, tables and expressions are stored as images or graphics and not linked with numbers, data, theories and expressions which exist behind and support them. If the results of experiments and mathematical expressions which used in an article can be attached or downloaded from database, they can be used for further investigation, visualization and evaluation.

It requires unified and reusable data representation, and in many fields of science and engineering, importance of data exchange is recognized and such data and knowledge representations are discussed and developed, in many cases, they uses XML which is based on Web technology and highly compatible with e-Journals.

In materials science and engineering, there are several development of data formats, such as MatML and MatDB. Also, some materials data systems store mathematical expressions which describe the relationships between physical properties and state variables since they are very important knowledge in order to estimate properties and assess experimental data. In this presentation, requirements for e-Journals linked with data and mathematical knowledge will be discussed using an example of thermophysical property database system.

Keywords: e-Journal, materials database, mathematical knowledge