APPLICATIONS OF COMPUTATIONAL METHODS TO PRODUCT AND PROCESS DESIGN FOR INDUSTRY

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ABSTRACT

Efficient manufacturing and process design are important to achieve the Sustainable Development Goals. This is because efficient manufacturing reduces the waste of energy and resources. It is also necessary to study the processing methods of environmentally friendly materials.

Computational methods are very useful tools for efficient manufacturing and process design in the industry, and expected to progress day by day. Appropriate product and process designs for efficient production can be predicted in advance by numerical simulation of material forming, and experiments can be conducted effectively based on these predictions. Computational methods are also used to discuss experimental results because numerical simulations can provide a lot of information that cannot be observed in experiments. Advances in computational methods are important to improve the accuracy of simulations. Modelling methodology for various industrial materials need to be developed.

In this IS, we would like to discuss effective and useful computational methods which are used for the present and futuristic industries in order to design products and processes.

Topics of interest for this invited session are:

- Application of computational method to optimization of process design in the industry
- Proposal of new manufacturing method for the industry based on numerical simulation
- Numerical and experimental investigation for forming of industrial material, such as metals, plastics, wood and so on
- Developments and study on computational methods for product and process design