Title: Materials Research in the Data Era: NIMS Initiatives

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Abstract:

The data age has arrived. There are high expectations for data-driven research in the materials field as well. In this presentation, I will outline recent efforts in data-driven materials development, with a focus on NIMS initiatives. Although materials data are not always abundant, examples of data-driven materials discovery and process optimization are expanding to metals, inorganic compounds, polymers, and so on. Recently, cases of high-speed development by combining automated experiments and AI have also emerged. The development of original tools and systems for designing materials and processes on computers is also progressing.

This talk will also address the construction of a data platform, an infrastructure to support data-driven materials research. Very recently, NIMS has developed a new system to accumulate and structure research data in a reusable form, taking advantage of the fact that NIMS is a materials research institute. Using this system, research data generated daily, including those with negative results, will be accumulated. We expect that this will significantly change materials research in the data age.