

§15. Establishment of A&M Data Application Forum

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Recent fast, significant and remarkable advancement we have witnessed in past decades in areas such as high-tech. industries, medical research, environmental science, atmospheric science, fusion sciences as well as other basic sciences including astrophysics and radiation physics and chemistry fully depend on extensive utilization of atomic and molecular (A&M) data for structures and dynamical processes not only for basic understanding of various phenomena, but also establishing guiding new key principles and basic technologies based on simulations with this accurate and complete A&M data basis. Without this A&M data basis, such an impressive progress of our technologies and basic understandings of nature would not have been realized. For example, NIFS A&M research group has concentrated on extensive activity of production, compilation and storage of A&M data for fusion research over more than two decades, and extensive A&M data basis collected in NIFS A&M data center has been widely used by a variety of basic and applied scientists worldwide. It is now considered as one of the world intellectual properties and assets commonly shared by all human beings. National Astrophysical Observatory of Japan (NAOJ) has been concerned with collecting A&M data relevant to astrophysical and astronomical research, which includes A&M dynamical processes and also emission of light from

atoms, ions and molecules for spectroscopic purposes and these data have made significant contributions to identifications of origins of various types of observed photons. Many electronic-engineering and material researchers in universities and industries have been extremely active to establish basic A&M data bases for further development of their thin-film manufacturing, etchings and other key technologies. As have been briefly highlighted, accurate, complete and comprehensive A&M data bases have served as the most important basis for development of key technologies and sciences. But orchestrated and collaborative efforts to produce, collect, evaluate and liberalize these A&M data from a variety of sectors of science and technology have not been materialized yet.

Therefore, we undertook this collaborative effort to establish the forum as a platform connecting between A&M data producers and data users as well as among data producers and users to integrate independent and isolated effort of data production and storage so that more efficient and complete data production and transmission could become possible. As a first attempt, we organized a joint meeting from producers and users from various research fields for the first time to identify their needs and concerns [1]. About twenty researchers who are A&M data producers and users from universities, governmental institutes and industries have participated in the meeting. They reported their own activities of A&M data production, collection, evaluation and storages, while data users talked about their needs and concerns on their usage of data bases. It was a extremely fruitful opportunity to exchange ideas from both sides and basically we all agreed to establish the integrated and universal forum across the board.

Reference

- [1] T. Kato, M. Kimura, D. Kato, A. Sasaki, et al., 1st Joint Meeting for A&M Data Producers and Users, at NIFS, Dec. 06.