The gigantic energy consumption problem of our IT technologies… Artificial Intelligence at rescue?

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Abstract

In this talk, I will discuss some of the great challenges that our Information Technologies are facing today in terms of data storage and energy consumption. The gigantic needs for data storage facilities in a society of massive information processing and with the emergence of Artificial intelligence at all levels of technologies accelerate the crucial demand for developing low-energy dissipative devices, circuits and technologies together with the development of sustainable energy power sources.

Here I will illustrate the use of AI (machine learning) technique to boost the innovation in materials by presenting our simulation activities supported by SAMSUNG in the field of mircorelectronics. I will also mention our new project concerning the massive deployment of AI tools to boost the search for optimized van der Waals heterostructures achieving efficient spin-to-charge conversion for future non-volatile memory technologies, or our project to develop novel workflows to enhance the capability of STEM equipment towards predictive modelling and direct access to materials properties and device performances.

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