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Physics-Informed Data Driven Plasma Equipment/Process Control Technologies for Plasma Applications.

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The fundamental idea in Machine Learning (ML) is that, for many applications, training a computer algorithm for predicting or finding patterns in the behavior of a complex system by observing many input-output samples of its behavior can be significantly simpler than developing physics-based models.

Many of the ideas underlying this data-driven approach to understanding complex systems have been known for years, but only recently has it become more practical to obtain and analyze the enormous quantities of data needed for the schemes to work. However, it requires time-consuming

Thus, effective implicit feature extraction is of paramount importance, especially in semiconductor manufacturing Virtual Metrology (VM). As a result, the analysis of the data is a big challenge. Thus, this talk introduces physics-informed plasma equipment intellectualization research based on a data-informed model platform and proposes a virtual metrology approach based on the neural network architecture for predicting and controlling process results.

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