

From Digital Twins to Fab Decisions: Orchestrating AI, Simulation and Metrology for Scalable 2D Materials and Device Manufacturing

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Apeiron Intelligence is building a new industrial layer for advanced materials innovation: AI-orchestrated scientific workflows that connect multiscale simulation, digital twins, and decision-ready insight for real manufacturing environments. Our platform automates and links leading modelling tools across DFT, molecular dynamics, machine learning, transport, and property-driven simulation pipelines, turning fragmented expert workflows into reproducible, modular, and much faster R&D processes.

Here, we will unveil how Apeiron's software orchestration technology can help companies working on graphene and other 2D materials to move beyond isolated simulations and toward an integrated digital workflow for materials growth, characterization, process optimization, and device integration. We will also highlight the role of large-scale simulation methodologies, originally developed to capture complex transport and materials behavior in highly realistic models, as an enabling engine for exploring physical and chemical properties at scales relevant to industrial interpretation and optimization.