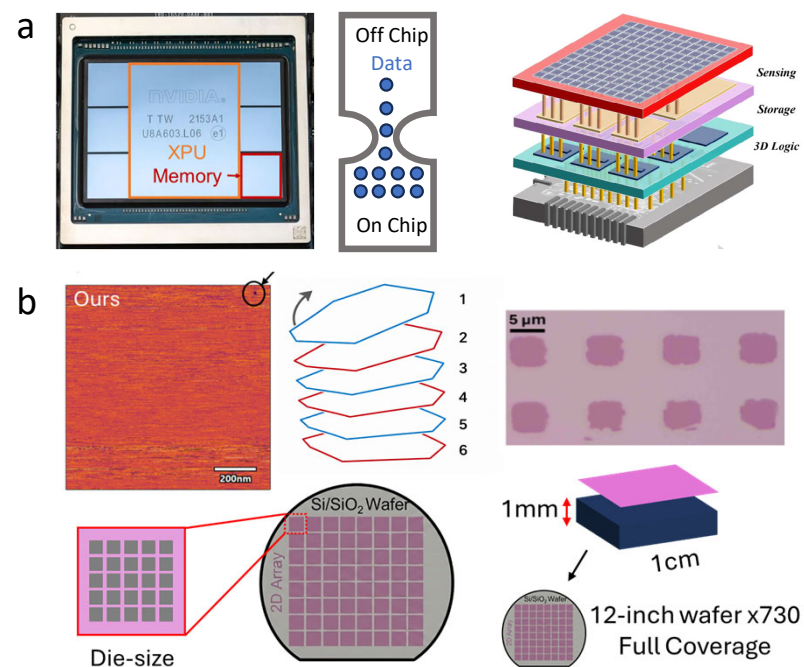


Wisconsin MRSEC IRG 2 members Daniel Rhodes and Yangchen He are commercializing new materials for advanced computing developed in part with MRSEC support. With support from the NSF I-Corps program and the Wisconsin MRSEC Advanced Materials Industrial Consortium, Rhodes and He have founded Pristine Quantum Inc. The company is based on their inventions of ultra low defect 2D semiconductor crystals and a method to print them directly onto industry-compatible substrates.

Pristine Quantum addresses a critical bottleneck in computer hardware: moving data between memory and processors is slow, and wastes gigawatts of power everyday. 2D semiconductors enable memory to be stacked just nanometers away from computer processing components, but materials quality and integration are roadblocks. Pristine's crystals are 1,000 times less defective than commercial alternatives. Combined with the team's etchant-free integration process, the high-quality crystals are printed directly onto industry-compatible substrates.



a, Conventional computing (left), in which data storage is separated from logic by millimeters, compared to the integrated solution (right) in which logic and storage are stacked and separated by just nanometers. b, Pristine's technology, in which low defect 2D semiconductor crystals are disassembled into nanometer-thick layers, then printed across full-size wafers.