Quantum Generative Materials Achieves Breakthrough Materials Simulation

15.03.2023 | GlobeNewswire

CHEYENNE, March 15, 2023 - Quantum Generative Materials LLC ("GenMat" or the "Company") today announced that it has developed ZENO, a proprietary generative artificial intelligence that simulates known and new materials in an exponentially shorter time than traditional methods allow, including crucial properties such as electrical and thermal conductivity, heat capacity, local and charged density of states, band gap, formation energies, magnetic properties, and more.

GenMat has assembled a world-class interdisciplinary team of material scientists, computational chemists, quantum physicists, and quantum, machine learning and aerospace engineers that develop classical and quantum machine learning models for electronic structure calculations, molecular dynamics simulations, and multi-scale simulations, and then validate those models.

GenMat's team deployed a state-of-the-art high-performance computing platform with the capacity to conduct physics-based material simulations at workloads comparable to many conventional supercomputers, and then utilized that platform to train, develop and launch GenMat's proprietary new generative artificial intelligence for new material and mineral discoveries.

"Having faster, cheaper, more accurate multi-scale materials simulations powered by a truly generative artificial intelligence will drastically reduce trial and error costs for product development," said Deep Prasad, GenMat's founder and chief executive officer. "ZENO was recently used to successfully simulate critical properties of known catalysts during calibration testing late last year, and it has already begun to simulate new materials in selected applications."

While OpenAI's ChatGPT employs a generative AI language model to learn through interactions with users, providing valuable information for a wide range of use cases, GenMat's proprietary AI operates similarly, but it is designed to build in-house physics libraries that can enable discovery of new materials in an exponentially shorter time than current methods.

Prasad concluded: "GenMat was founded on the premise that dynamically expanding physics libraries coupled with state-of-the-art machine learning and advanced computing, with the proper thoughtful probative variables, will unlock the potential to discover and design new materials that will fundamentally disrupt entire markets. ZENO, when paired with these libraries and its internal systems architecture, is designed to learn and grow from commercial use cases on existing high-performance computing platforms, years before quantum computers are mainstreamed. We are excited by our progress, and we look forward to offering ZENO's solutions to enterprise clients for testing advanced materials simulation and synthesis, later this year."

About Quantum Generative Materials LLC
Quantum Generative Materials LLC ("GenMat") was founded in 2021 to develop and commercialize generative artificial intelligence models for the discovery of new materials and minerals. GenMat is a strategic investee of Comstock Inc. (NYSE: LODE), an innovator of technologies that enable systemic decarbonization and net zero circularity. GenMat is expanding the advancement of simulation and manipulation of matter for the discovery and development of new materials and minerals. GenMat has also built next generation physics software libraries that, when coupled with our generative AI, can dramatically accelerate materials development. These libraries and preloaded physics-models are customized, scaling and evolving.

To learn more, please visit www.genmat.xyz.

Contact information:

Deeptansu ("Deep") Prasad
Chief Executive Officer
Quantum Generative Materials LLC
1712 Pioneer Ave, Ste.192
Cheyenne, Wyoming, U.S. 82001
Tel (833) 443-6628
deep@genmat.xyz