Dr Anirban Mukherjee is a quantum-computational chemist whose work targets scalable electronic-structure methods for strongly correlated molecules and materials. He received his Ph.D. in Condensed Matter Physics from the Indian Institute of Science Education and Research (IISER) Kolkata, where he introduced the Tensorized Unitary Renormalization Group technique for correlated electron systems. As a post-doctoral fellow at Ames National Laboratory, he developed adaptive variational quantum algorithms and tensorized treatments of Gutzwiller model Hamiltonians, alongside tensor-network and multireference approaches for transition-metal complexes.

Dr Mukherjee now serves as a Scientist at TCS Research, designing hybrid HPC–quantum workflows. His principal innovations—Tensor-Factorized Hamiltonian Downfolding (TFHD) and Qubitized Downfolding—compress many-electron Hamiltonians into rank-2 tensor networks and depth-optimal quantum circuits, enabling chemically accurate simulations of active spaces exceeding 100 orbitals on GPUs and fault-tolerant qubit hardware.