Partha Majumder has made significant contributions to human-, statistical- and population genetics and genomics. He has developed methodologies for mapping human disease genes, identified genomic factors underlying many diseases notably oral cancer, and has reconstructed the ancestries and relationships of populations groups of India and Asia using genomic methods and tools.

He is a Member of the Organizing Committees of the international Human Cell Atlas consortium and the International Common Disease Alliance. He has served as the Indian national co-ordinator on the International Cancer Genome Consortium. He has provided service to the UNESCO and the WHO.

For his contributions to science, he was selected as a National Science Chair by the Government of India. He has established the National Institute of Biomedical Genomics in India and is currently a Distinguished Professor in the Institute. He is also an Emeritus Professor of the Indian Statistical Institute.

He is a recipient of the Barclay Memorial Medal of The Asiatic Society, Biology Prize of The World Academy of Sciences, Golden Jubilee Commemoration Medal of the Indian National Science Academy, among many others.