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The Foundation of Unification Theory & Gravitational Wave Detections in Space

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In this talk, I will report the recent progresses on the foundation of unification theory and the projects on the space-based gravitation wave detections. I shall briefly outline that the foundation of the hyperunified field theory based on the maximum coherence motion principle and maximum entangled-qubits motion principle as well as gauge and scaling invariance principle enables us to make issues on the long-standing open questions, such as: what is made to be the fundamental building block of nature? What is acted as the fundamental interaction of nature? what brings about the fundamental symmetry of nature? what is the basic structure of spacetime? how many dimensions does spacetime have? what makes time difference from space? why is there only one temporal dimension? why do we live in a universe with only four dimensional spacetime? Why are there leptons and quarks more than one family? why are the existed leptons and quarks the chiral fermions with maximum parity violation? how does the fundamental symmetry govern basic forces? what is the nature of gravity? how does early universe get inflationary expansion? what is a dark matter candidate? what is the nature of dark energy? what is the nature of Higgs boson? how can we understand three families of chiral type leptons and quarks? It is expected that the gravitational wave detections with LISA and Taiji projects in space provide a new window for exploring the gravitational universe and possible new phenomena of unification theory.

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