Foreword

This work represents the author's second book on mechanics. The first volume served as both a historical archive and a developmental record of early theoretical progress, including exploratory paths, false starts, and conceptual missteps. While that material may primarily interest the author, it remains a valuable resource for understanding the evolution of the theory and the origins of its more unconventional ideas.

This second volume adopts a more focused and analytical approach, addressing foundational aspects of classical and modern mechanics—particularly phenomena such as centrifugal force and the Lorentz transformation—and exploring their deeper implications within an extended framework referred to as Delta-C Mechanics.

Of particular significance is the emerging connection between this theoretical framework and the formalism of Feynman's path integrals. In standard quantum mechanics, Feynman's action integral approach provides a powerful method for computing transition amplitudes by summing over all possible paths, weighted by the exponential of the classical action (in units of $\hbar$). The discovery that the action flow functions derived in Delta-C Mechanics closely mirror the mathematical structure of these path integrals suggests a deeper, perhaps fundamental, link between atomic state transitions and the mass properties of nuclear particles.

This consilience offers compelling evidence that the probability density flows, which govern quantum transitions, may also inform the structural basis of particle mass and vertex functions in interaction theory. The vertex functions—central to quantum field theory—represent interaction points where particles are created, annihilated, or scatter, and they play a key role in defining both atomic and subatomic dynamics.

The realization that flow probability densities in Delta-C Mechanics correspond closely with these standard constructions marks a noteworthy advance. It not only bridges concepts from classical mechanics to quantum field theory but also offers a novel interpretation of how atomic states may emerge from deeper nuclear and sub- nuclear principles.

The first two papers included in this volume are arguably the most significant in establishing the theoretical foundation. They define the core operations of the framework and articulate its relevance to both established physics and novel extensions.