YasudaK Model: Proton-Proton Collision

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Abstract

The YasudaK Model offers a novel geometrical approach to proton-proton collisions, integrating insights from Quantum Chromodynamics (QCD) while addressing its limitations. The model introduces the central role of *Gluon Balls* in creating *Meson Pi* (π) structures and their direct influence on particle stability and emission dynamics. This approach explains critical phenomena, such as the emission of positrons and neutrinos during collisions, which are not fully resolved by QCD's traditional framework of quark exchanges ($d \leftrightarrow u$). By emphasizing geometrical redirection of quantum fluxes mediated by *Gluon Balls*, the YasudaK Model provides a logically consistent and complete description of proton-proton interactions. This document outlines the key stages of the model, supported by detailed analysis and Figure 1, illustrating the collision process.

1 Introduction

Proton-proton collisions are fundamental to understanding the subatomic structure and the dynamics of the strong nuclear force. While QCD provides a robust theoretical framework for interactions mediated by gluons and quarks, it faces challenges in explaining certain experimentally observed phenomena, such as the emission of positrons and neutrinos. The YasudaK Model addresses these gaps by proposing a geometrical mechanism driven by *Gluon Balls* and *Meson Pi* structures.

1.1 Key Questions Addressed by the YasudaK Model

1. **Does QCD explain why positrons and neutrinos are expelled during proton-proton collisions?**
   Short Answer: Not completely.
   Explanation: QCD focuses on the strong interaction, describing how protons, neutrons, and pions are formed and interact through quarks and gluons. However, the appearance of positrons and neutrinos suggests processes governed by the weak interaction, which are not directly addressed by QCD. For instance, the weak decay $u \to d + e^+ + \nu_e$ involves quark transformation and emission of light particles but does not incorporate the geometrical role of intermediate structures such as *Gluon Balls*.

2. **Can the transformation $d \leftrightarrow u$ resolve the issue?**
   Short Answer: No.

Explanation: The exchange $d \leftrightarrow u$, as described in the Standard Model, explains processes like beta decay (β^+ or β^-). However, it fails to account for:

- The geometric linkage between pions and protons/neutrons.
- The role of *Gluon Balls* in organizing internal fluxes.
- The emission of positrons and neutrinos as structural responses to equilibrium.

Such transformations appear as secondary effects, missing the intermediate structures that complete the process logically and geometrically.

3. **Is the geometrical interpretation correct?**
Yes, the proposed geometrical approach resolves the issue coherently by:

    - Accounting for the interaction between *Gluon Balls* and pions.
    - Explaining the emergent particles, such as positrons and neutrinos, as consequences of structural realignment rather than quark exchange.

4. **Are Meson Pi (π) structures linked to protons and neutrons via *Gluon Balls*?**
Yes. Pions (π^+, π^-, π^0) act as intermediaries in nuclear interactions, forming at short distances between protons and neutrons. *Gluon Balls* stabilize these interactions and support pion formation, geometrically connecting them to the proton and neutron structures.

5. **Do Meson Pi structures carry electrons/antineutrinos and positrons/neutrinos?**
Yes, this is plausible. Observational evidence aligns with this hypothesis:

    - The Meson Pi of the neutron is associated with an electron (e^-) and an antineutrino ($\bar{\nu}$).
    - The Meson Pi of the proton is associated with a positron (e^+) and a neutrino (ν).

    This dynamic connects pion activity to the emission of light particles during collisions.

6. **Is the collision fully explained by this logic?**
Yes. The collision is explained without requiring direct quark exchange ($d \leftrightarrow u$):

    - Pions are formed through *Gluon Balls*.
    - *Gluon Balls* stabilize and balance internal fluxes, enabling consistent assembly of particles (protons, neutrons) and associated emissions (positrons/neutrinos or electrons/antineutrinos).

    Events emerge from geometric interactions, eliminating logical inconsistencies and emphasizing the role of proximity in pion formation.

2 The YasudaK Model

The YasudaK Model is structured into six stages, as illustrated in Figure 1:

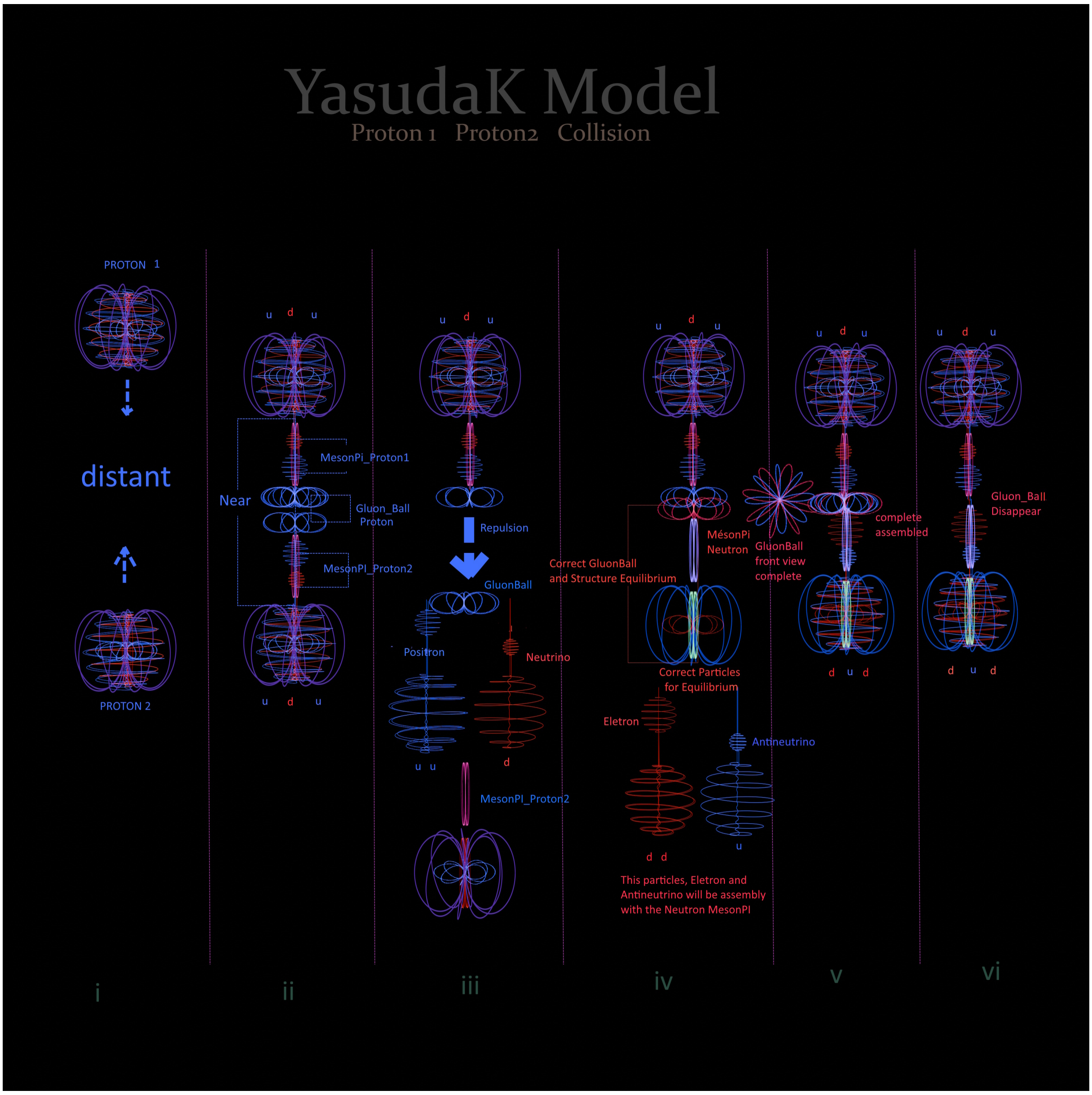

Figure 1: YasudaK Model: Stages of Proton-Proton Collision.

2.1 Stage I: Initial State (Distant)

Two protons (uud) approach each other with their internal quarks stabilized by gluons. At this distance, no significant interactions occur.

2.2 Stage II: Formation of *Meson Pi* Structures

As the protons come closer, *Gluon Balls* emerge and begin forming *Meson Pi* structures (π^+ and π^-). These structures are precursors to interaction and are influenced by the internal fluxes of the protons.

2.3 Stage III: Repulsion and Emission

Due to premature *Meson Pi* formation, repulsion occurs between the *Gluon Balls*, destabilizing certain quantum fluxes. This leads to the emission of a positron (e^+) and a neutrino (ν), marking the breakdown of the initial configuration.

2.4 Stage IV: Correct *Gluon Ball* Formation

A stable *Gluon Ball* forms, allowing the correct alignment of quantum fluxes. This stage is critical for assembling the *Meson Pi* of the neutron, which results in the assembly of an electron (e^-) and an antineutrino ($\bar{\nu}$).

2.5 Stage V: Assembly of Final Structures

The neutron (udd) is completed, and the internal fluxes stabilize. The protons and neutrons reach a geometrically balanced state mediated by the *Gluon Ball*.

2.6 Stage VI: Dissolution of *Gluon Ball*

The *Gluon Ball* dissipates as the equilibrium is achieved, leaving stable structures and completing the collision process.

3 Discussion

The YasudaK Model provides a coherent explanation for the emission of positrons and neutrinos, which traditional QCD does not address. By focusing on geometrical interactions and flux redirection mediated by *Gluon Balls*, the model resolves logical inconsistencies and offers a complete description of proton-proton collisions.

4 Conclusion

This model establishes a new framework for understanding proton-proton interactions, emphasizing the role of *Gluon Balls* and *Meson Pi* structures. It not only aligns with observed phenomena but also extends the theoretical boundaries of QCD.