

BAB 5

PENUTUP

5.1 Kesimpulan

Berdasarkan pembahasan dan analisis di atas maka dapat diperoleh persamaan Lagrangian untuk weak interaction dengan model Nambu-Goldstone boson sebagai berikut,

$$\begin{aligned} L_{SU(2)} &= \frac{1}{2} \partial_\mu h(x) \partial^\mu h(x) - \left[\frac{1}{2} m_h^2 h(x)^2 + \frac{1}{2} m_h^2 v^{-1} h(x)^3 + \frac{1}{8} m_h^2 v^{-2} h(x)^4 \right] \\ &\quad + \left[q^2 v^2 A_\mu A^\mu + \frac{q^2}{2} h(x)^2 A_\mu A^\mu \right] + \left(-\frac{1}{4} F_{\mu\nu} F^{\mu\nu} \right) \\ &= \frac{1}{2} \partial_\mu h(x) \partial^\mu h(x) - \frac{1}{4} \lambda v^2 h(x)^2 - \frac{1}{4} \lambda v h(x)^3 - \frac{1}{16} \lambda h(x)^4 \\ &\quad + q^2 A_\mu A^\mu \left(v + \frac{h(x)}{\sqrt{2}} \right)^2 - \frac{1}{4} F_{\mu\nu} F^{\mu\nu} \end{aligned}$$

5.2 Saran

Dari pembahasan persamaan di atas diperoleh persamaan Lagrangian pada interaksi lemah (weak interaction) Nambu-Goldstone Boson. Dalam penelitian ini masih dapat dilakukan penelitian lanjutan, yaitu dapat mencari lagi Hamiltonian weak interaction dengan persamaan yang ada, bagaimana jika persamaan yang di peroleh dibuat dalam grafik dengan plot menggunakan program mathematica.

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