INTISARI

KAJIAN MEKANIKA KUANTUM DALAM SISTEM KOORDINAT TOROIDAL

oleh

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Mekanika kuantum telah berkembang dengan sangat cepat sejak perumusan awalnya sebagai sebuah teori untuk tataran dunia mikroskopik. Di sisi lain, ketidaktahuan atas sifat mikroskopik plasma masih menjadi permasalahan mendasar pada reaktor fusi toroidal kemudian permasalahan ini dicoba didekati menggunakan mekanika kuantum yang diadaptasikan ke dalam sistem koordinat toroidal. Telah diperoleh operator posisi, momentum, serta operator Hamiltonan untuk sistem koordinat toroidal. Sifat dari operator-operator tersebut telah diketahui melalui komutator antar operator.

Kata kunci: mekanika kuantum, sistem koordinat toroidal, operator.

ABSTRACT

A STUDY ON QUANTUM MECHANICS IN TOROIDAL COORDINATE SYSTEM

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Quantum mechanics has been developed significantly since its first formulation as a theory for microscopic worlds. On the other hand, our lack of understanding on the microscopic behavior of fusion plasma has become a fundamental problems in toroid fusion reactor. This problem is then tried to be solved using quantum mechanics which has been adapted in toroidal coordinate system. Position, momentum, and Hamiltonian operators has been obtained. The properties of these operators has known using commutator between operators.

Keywords : quantum mechanics, toroidal coordinates, operator.