



INTISARI

RELASI LINEAR *SELF-ADJOINT* DALAM PERTURBASI KOMPAK

Oleh

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Di dalam tesis ini dibahas sifat-sifat relasi linear *self-adjoint* dalam perturbasi kompak atau perturbasi rank berhingga untuk menyelidiki syarat-syarat tambahan yang diperlukan agar perturbasi kompak dan perturbasi rank berhingga dari relasi linear *self-adjoint* tetap merupakan relasi linear *self-adjoint*. Pembahasan diawali dengan membahas *adjoint* relasi linear, dekomposisi relasi linear tertutup, dan subruang pereduksi untuk relasi linear. Melalui konsep-konsep tersebut diselidiki syarat-syarat agar suatu relasi linear tertutup bersifat *self-adjoint* dengan hanya memperhatikan bagian operator dari relasi linear tersebut. Selanjutnya, dibahas hubungan antara bagian operator relasi linear tertutup dengan bagian operator perturbednya. Hubungan tersebut memberikan karakteristik perturbasi kompak dan perturbasi rank berhingga relasi linear *self-adjoint*. Terakhir, dibahas perumuman-perumuman Teorema Kato-Rellich untuk relasi linear *self-adjoint* yang diturunkan dengan memanfaatkan hasil-hasil yang telah diperoleh sebelumnya.



ABSTRACT

SELF-ADJOINT LINEAR RELATION UNDER COMPACT PERTURBATION

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In this thesis, we focus on studies of several properties of self-adjoint linear relation under compact or finite rank perturbation to determine additional condition such that compact and finite rank perturbation of self-adjoint linear relation remain self-adjoint. First, we introduce several concept on linear relation such as adjoint, decomposition of closed linear relation and reducing space. Next, by these concepts, we will discover several properties of self-adjoint linear relation which can be find out by observing its operator part. Furthermore, we establish relationship among operator part of closed linear relation and operator part of its perturbation. Using this relationship, we derive several characteristics of compact and finite rank perturbation of self-adjoint linear relation. Lastly, we derive some generalization of Kato-Rellich's Theorem for self-adjoint linear relation by using the properties which has been previously obtained.