Quadratic Forms and Differential Operators

Professor

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Summary

It is the aim of this lecture to present Kato's First and Second Representation Theorem in full details. This is a classical tool to derive Friedrich's extension of a symmetric operator and it is a widely used tool for partial differential equations. In particular we will show its importance in practical problems when we discuss the Laplace operator in higher dimensions with different classes of potentials.

Contents

Real part of an m-sectorial operator, perturbation of an m-sectorial operator and its resolvent, symmetric unperturbed operators, pseudo-Friedrichs extensions.

- **Chapter 5: Quadratic forms and the Schrödinger operators**

  Ordinary differential operators, Dirichlet form and Laplace operator, Schrödinger operators in $\mathbb{R}^3$.

References

[1] T. Kato, *Perturbation Theory for Linear Operators*, Springer, New York, 1966.