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**Title of the lecture:**

Non-Hermitian systems: topological structure in familiar systems

**Format:**

TBA

**Contents**

1. Physical motivations for distinguishing between Hermitian & non-Hermitian system
2. Non-Hermiticity in quantum mechanics and in classical mechanics
3. Non-Hermitian perturbation theory
4. Topology of the eigenvalue spectrum
5. An introduction to the fundamental group
6. Prospects for topological control in non-Hermitian systems

**References:**

1. T. Kato, A Short Introduction To Perturbation Theory For Linear Operators (Springer Verlag).
2. Y. S. S. Patil, et al., "Measuring the knot of non-Hermitian degeneracies and non-commuting braids" Nature 2022.
3. R. Gilmore, Catastrophe theory For Scientists And Engineers (Dover) - just Chapter 14: "Jordan-Arnol'd Canonical Form".

The Wikipedia articles: "Fundamental group" and "Braid group".