

第199回エンレイソウの会

場 所： 北海道大学工学部A棟A1-17

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講演者： Prof. Amit Dutta
(Department of Physics, IIT Kanpur, India)

題 目： 『Quantum phase transitions and quantum fidelity measures』

要 旨： Phase transitions are one of the most common features in nature; we know ice melts when temperature increases. But what about zero temperature? Can there be a phase transition then also? The answer is yes. Quantum mechanics can drive a phase transition at zero temperature; these are known as quantum phase transitions. I shall discuss the basics of thermal phase transition, scaling relations and quantum phase transition providing examples using simple spin models. I shall also mention quantum phase transition in topologically ordered systems. Finally, I shall conclude with a discussion on how an information theoretic measure like quantum fidelity can be used to detect a quantum critical point.

世話人：井上 純一
(北海道大学大学院情報科学研究科)

★エンレイソウの会連絡先
北海道大学大学院工学研究院応用物理学部門 松浦徹
TEL : 011-706-7818 Email: toru@eng.hokudai.ac.jp