



The Abdus Salam
International Centre for Theoretical Physics



School on
NEW TRENDS IN QUANTUM DYNAMICS AND ENTANGLEMENT
14 - 18 February 2011

QUANTUM MEASURES FOR NON-MARKOVIANITY

1. Open Quantum Systems and Distinguishability of Quantum States

Heinz-Peter BREUER
Albert Ludwigs Universitaet Freiburg
Physikalisches Institut
D-790104 Freiburg, Germany

Abstract:

The first lecture gives a brief introduction into the theory of open quantum systems and develops some central notions such as positivity, complete positivity and quantum dynamical maps. Moreover, we will introduce the trace distance between density matrices and discuss its mathematical properties as well as its physical interpretation as a measure for the distinguishability of quantum states.