



The Abdus Salam  
International Centre for Theoretical Physics



School on  
NEW TRENDS IN QUANTUM DYNAMICS AND ENTANGLEMENT  
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## NON-MARKOVIAN DYNAMICS IN OPEN QUANTUM SYSTEMS

### 1. The Lindblad Theory in Open Quantum Systems

**Bassano VACCHINI**

Universita' degli Studi di Milano, Dipt. di Fisica  
I-20133 Milano, Italy

#### Abstract:

We recall the Lindblad structure of the master equation for an open quantum system, which describes the dynamics in the Markovian case. We will consider in particular the issue of complete positivity, pointing to extensions of the Lindblad theory which describe non-Markovian systems and still ensure a well-defined dynamics. Examples will be provided of this generalized Lindblad structure.