

## 2nd QCIC School Program

	Wednesday (Feb. 7th)	Thursday (Nov. 10th)	Friday (Nov. 11th)
8:00		Breakfast	Breakfast
9:00	Arrival	Free Discussion	Free Discussion
12:00	Lunch	Lunch	Lunch
13:00	Kim, Jeongsan 1	Bae, Joonwoo 1	Beny, Cedric 1
14:00	Coffee Break	Coffee Break	Coffee Break
14:30	Kim, Jeongsan 2	Bae, Joonwoo 2	Beny, Cedric 2
15:30	Coffee Break	Coffee Break	Coffee Break
16:00	Kim, Jeongsan 3	Bae, Joonwoo 3	Beny, Cedric 3
17:30	Dinner	Dinner	Dinner

Bae, Joonwoo

제목: 양자얽힘의 소개

초록: 본 강의에서는 양자얽힘을 소개하고 그 성질과 양자정보처리를 위해 양자얽힘을 다루는 방법을 소개한다.

Kim, Jeongsan

주제: 양자계산 알고리즘

초록: 본 강연에서는 양자계산이론의 기본적인 개념을 바탕으로 주요 양자계산 알고리즘들을 소개한다. 아울러 최신 양자계산 알고리즘의 동향과 이러한 양자알고리즘들이 기존의 계산 및 정보이론에서 해결하지 못하는 여러 난제들을 어떻게 효과적으로 해결할 수 있는지를 살펴본다.

Beny, Cedric

Title: Quantum information in quantum field theory

Abstract: In quantum field theory (QFT), the presence of continuously many degrees of freedom has turned out to be deeply problematic at the mathematical and conceptual levels. These and other issues resulted in a formulation of quantum theory that is quite different from that used in quantum information theory. In these lectures, I will try to demystify QFT, and give some examples of how to think about quantum states, quantum operations and distinguishability in perturbative QFT. I will explain the difficulties related to the need for renormalization, as well as gauge symmetries and fermions if time permits. Technically, I will mainly use the formalism of Gaussian states and channels on CCR and CAR  $C^*$ -algebras.