Institute for Research in Fundamental Sciences

School of Astronomy

Ph.D Defense Session

Title:

Study of Some Quantum Entanglement Measures by Holography

Candidate:

Farzad Omidi, IPM-SoA

Venue:

Seminar Room of
School of Particles and Accelerators, IPM

Date:

October 22, 2017

(یکشنبه، ۳۰ مهرماه ۱۳۹۶)

Time:

15:30-16:30

Abstract:

According to the Gauge/Gravity duality, strongly coupled field theories with large number of degrees of freedom can be studied by classical theories of gravity. In this context, one can study different observables of quantum field theories. In this thesis, we study some measures of quantum entanglement such as entanglement entropy and mutual information by applying the celebrated Ryu-Takayanagi formula proposed in 2006. We mainly study the effects of geometrical singularities on these measures both in d-dimensional conformal and hyperscaling violating field theories. We also study these measures in two simple holographic models for the process of momentum relaxation and show momentum relaxation reduces the correlation length among the degrees of freedom of the dual quantum field theory.

Address: School of Particles and Accelerators, Institute for Research in Fundamental Sciences (IPM), Opposite the ARAJ, Artesh Highway

Tel: (21) 26130674-5 , (21) 22809150