



# TOHOKU FORUM for CREATIVITY

Tohoku Forum for Creativity Thematic Program 2015

Fundamental Problems in Quantum Physics: Strings, Black Holes and Quantum Information

**International Workshop on Strings, Black Holes and Quantum Information**

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## Quantum Entanglement of Local Operators in various CFTs

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Schedule:

Wednesday, September 9, 15:30-16:30

Place:

TOKYO ELECTRON House of Creativity 3F, Lecture Theater

Katahira Campus, Tohoku University

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Abstract:

When the subsystem size is given by a half of the total space, in various CFTs we have investigated the time evolution of (Renyi) entanglement entropies for those locally excited states which are defined by being acted by local operator on the ground state. We have found that they approach finite constants in free field theories. We have found that they depend on the details of local operators such as their spin and etc. We also found that these results are interpreted in terms of the relativistic propagation of quasi-particles. We have investigated these quantities in strongly coupled theory. In this theory, it does not approach constants. It increases logarithmically with time. In this talk, I would like to explain our recent progress.