

APCTP SEMINAR

Collisions of Localized Shocks and Quantum Circuits

Ying Zhao

KITP

May 4th (Wed.) 11:00

Online via **ZOOM**

We study collisions between localized shockwaves inside a black hole interior. We give a holographic boundary description of this process in terms of the overlap of two growing perturbations in a shared quantum circuit. The perturbations grow both exponentially as well as ballistically. Due to a competition between different physical effects, the circuit analysis shows dependence on the transverse locations and exhibits four regimes of qualitatively different behaviors. On the gravity side we study properties of the post-collision geometry, using exact calculations in simple setups and estimations in more general circumstances. We show that the circuit analysis offers intuitive and surprisingly accurate predictions about gravity computations involving non-linear features of general relativity.

■ ZOOM Webinar

1) Please register through this ZOOM link

https://us06web.zoom.us/meeting/register/tZcsd-2rqTMpEtxy0Liy8roN_I5B_UXUAazV

*(password is 0)

2) Join the webinar with a link generated after the registration

3) Please rename your profile - E.g. **Full name (affiliation)**

■ Contact information

- Host: Junggi Yoon (junggi.yoon@apctp.com)

- Office: Research Support Team (ra@apctp.org)