Physics Seminar: Jinwei Chu

Wednesday, December 3 · 2:00 – 3:00pm, room 313

Title: A new approach to small black holes in string theory

Abstract: In this talk, I will introduce a new approach for studying $d+1$ dimensional Euclidean Schwarzschild black holes with Hawking temperature near the Hagedorn temperature, as well as the Horowitz-Polchinski (HP) solutions. The worldsheet theory that describes some of these backgrounds is strongly coupled. We use its underlying affine $SU(2)_L\times SU(2)_R$ symmetry to continue to weak coupling, by varying the level of the current algebra from the small value relevant for black holes and HP solutions to a large value. In this limit, the dynamics can be captured by a solvable effective field theory, closely related to previous work on the non-abelian Thirring model. I will also discuss several interesting properties of the resulting solutions that have implications for the black hole/fundamental string transition.