Institut Henri Poincaré

11 rue Pierre et Marie Curie, 75231 Paris cedex 05

String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 24 Mars 2022, 10:00

Vasilis Niarchos

University of Crete

Conformal bootstrap with Reinforcement Learning

I will present a novel numerical treatment of the truncated conformal-bootstrap equations that employs Reinforcement Learning algorithms. A particularly interesting algorithm that can handle multi-dimensional searches in continuous spaces is the soft Actor-Critic algorithm. I will report results of preliminary applications to two-dimensional CFTs, where the Reinforcement-Learning agent was asked to identify well-known theories like the 2D Ising and tri-critical Ising models, or to track CFT data on the conformal manifold of the compactified scalar on a circle. The method can be used to study arbitrary (unitary or non-unitary) CFTs in any spacetime dimension. I will discuss the advantages and disadvantages of the approach, and its future prospects.

Institut Henri Poincaré, salle 314, 3ème étage