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## Deep learning the analytical structure of scattering amplitudes

*Monday, 8 July 2024 15:00 (20 minutes)*

Inverse problems, in particular those related to obtaining the scattering amplitudes from experimental data, are known to be hard, both conceptually and numerically. Recently, JPAC collaboration has developed a Deep Neural Network based approach that allows to address essential parts of this problem. We showed that a neural network trained with synthetic differential intensities calculated with scattering length approximated amplitudes, accurately predicts the Riemann sheet of the pole which is closest to the physical region. Specifically, for the  $P_c(4312)$  signal, the neural network classifier provides the virtual state related to the pole on the 4th Riemann sheet as a most probable interpretation. We also discuss the adjustments necessary for the method to be applicable to lighter resonances.

### **session**

B. Hadron Spectroscopy

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