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Data-driven pole determination of overlapping resonances

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We describe the application of a model-independent reconstruction method to experimental data in order to identify complex poles of overlapping resonances. The algorithm is based on the Schlessinger Point Method where data points are interpolated using a continued-fraction expression. Statistical uncertainties of the experimental data are propagated with resampling. In order to demonstrate the feasibility of this method, we apply it to the S-wave $J/\psi \rightarrow \gamma \pi^0 \pi^0$ decay, and perform the pole extraction from BESIII data, to identify identify the $f_0(1500)$, $f_0(1710)$, and $f_0(2020)$ scalar states.

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Classificazione della track: Partial wave analyses and baryon resonance parameter extraction