

Theoretical interpretation of two recent BESIII experiments



Speaker: Prof. Eulogio Oset
Host: Prof. Shuangshi Fang
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Abstract:

We will discuss two BESIII experiments: $a_0(980)$ production, triangle singularity, and non- ϕ background in the $J/\psi \rightarrow \phi \eta \pi^0$ reaction; and $a_0(980)$ and $f_0(980)$ excitation in the $D^+ \rightarrow \pi^+ \eta \eta$ decay.

In the first experiment, we discuss the role of a predicted triangle singularity and the experiment done to look for it, with the surprise of a large non- ϕ contribution in the predicted region. We provide a theoretical explanation for the observed mass distributions and the reason of the non- ϕ contribution.

In the second experiment, in contrast to the suggested dominance of a triangle mechanism, we show the unexpected contribution of the $f_0(980)$ excitation which is responsible for an abnormal shape of the experimental mass distributions.

About the speaker:

Professor Oset is an internationally-renowned expert in particle and nuclear physics, affiliated with the University of Valencia and the CSIC Institute, Spain. He has authored nearly 700 publications in high-profile physics journals including Physical Review Letters. His work has accumulated more than 34 000 citations on Inspire-HEP, with an h-index of 92.

His career track record includes: Research Associate at the State University of New York (1974-1977); Assistant Professor at the University of Regensburg, Germany (1977-1978); Assistant Professor at the University of Barcelona, Spain (1978-1982); and Professor at the University of Valencia starting from 1982.

He has served as an advisor for over ten international conferences and experimental collaborations. He acted as Associate Editor for The European Physical Journal A, and has worked as a referee for leading journals such as Physical Review Letters, Physics Letters B and Physical Review D. He was recognized as an Outstanding Referee by the American Physical Society and Physics Letters B. He received the 2023 Grand Prize of the Spanish Physical Society, and was awarded the 2026 CAS PIFI Distinguished International Scholar.