

The Sill distribution and its application to exotic hadrons

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We present a simple alternative to the relativistic Breit–Wigner distribution that (i) contains left-threshold effects, (ii) is properly normalized for any decay width, (iii) can be obtained as an appropriate limit in which the decay width is a constant, (iv) is easily generalized to the multi-channel case (v) as well as to a convoluted form in case of a decay chain and (vi) is simple to deal with. We first apply this distribution to well-known and conventional hadrons and then extend it to the study of exotic hybrid mesons (such as $\eta_1(1855)$ and $\pi_1(1600)$) as well as to some unsettled baryonic resonances.

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