

Construction of the pion scalar form factor from few poles and zero

Monday, 6 June 2016 15:25 (0:20)

Collaboration

Abstract content

Very simple and self-sufficient method of construction and definitive-full analysis of the pion scalar-isoscalar form factor in the elastic region is presented. It is based on precise S -wave $\pi\pi$ scattering phase shifts generated by dispersive analysis of experimental data with imposed crossing symmetry condition. Final result for values of the $f_0(500)$ meson mass and width, $m_\sigma = (459 \pm 22)$ MeV; $\Gamma_\sigma = (521 \pm 60)$ MeV is compatible with the results from dispersive analyses of the BERN and MADRID groups to be considered now as the most reliable values of the $f_0(500)$ scalar meson parameters, though in presented analysis another, unusual way has been applied. Self-sufficiency of the proposed derivation of the constructed form factor and its predictions near the $K\bar{K}$ threshold have been examined.

Primary author(s) : KAMIŃSKI, Robert (Institute of Nuclear Physics PAN, Kraków)

Co-author(s) : DUBNICKA, Stanislav (Inst of Physics SAS); DUBNICKOVA, Anna Zuzana (Comenius University); LIPTAJ, Andrej (Institute of Physics, Slovak Academy of Sciences, Dubravska cesta 9, 845 11 Bratislava 45, Slovak Republic)

Presenter(s) : KAMIŃSKI, Robert (Institute of Nuclear Physics PAN, Kraków)

Session Classification : Parallel Session C5