



Contribution ID: 71

Type: **Invited Talk**

## Data-driven dispersive analysis of the $\pi\pi$ and $\pi K$ scattering

*Thursday, 16 September 2021 13:00 (30 minutes)*

We present a data-driven analysis of the resonant S-wave  $\pi\pi\rightarrow\pi\pi$  and  $\pi K\rightarrow\pi K$  reactions using the partial-wave dispersion relation. The contributions from the left-hand cuts are accounted for using the Taylor expansion in a suitably constructed conformal variable. The fits are performed to experimental and lattice data as well as Roy analyses. For the  $\pi\pi$  scattering we present both a single- and coupled-channel analysis by including additionally the  $KK^{\bar{}}$  channel. For the latter the central result is the Omnès matrix, which is consistent with the most recent Roy and Roy-Steiner results on  $\pi\pi\rightarrow\pi\pi$  and  $\pi\pi\rightarrow KK^{\bar{}}$ , respectively. By the analytic continuation to the complex plane, we found poles associated with the lightest scalar resonances  $\sigma/f_0(500)$ ,  $f_0(980)$ , and  $\kappa/K^*_0(700)$  for the physical pion mass value and in the case of  $\sigma/f_0(500)$ ,  $\kappa/K^*_0(700)$  also for unphysical pion mass values.

**Presenter:** DANILKIN, Igor (Johannes Gutenberg University of Mainz)

**Session Classification:** Oral Presentations