

Abstract Submitted  
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**$\sigma$  and  $\kappa$  mesons as broad dynamical resonances in one-meson-exchange model** NGO THI HONG XIEM, SHOJI SHINMURA, Faculty of Engineering, Gifu University, Yanagido 1-1, Gifu, 501-1192, Japan — The existences of broad scalar  $\sigma(600)$  and  $\kappa(700)$  mesons have been discussed intensively in the experimental and theoretical studies on  $\pi\pi$  and  $\pi K$  scatterings. By using chiral perturbation model, J. Oller, A. Gómez and J. R. Peláez confirmed the existence of these mesons as dynamical resonances. In meson-exchange models, their existence has not been established yet. In this talk, using the quasi-potential of meson-exchange model and Lippmann-Schwinger equation, we determine the T and S -matrices, from which we could find the positions of poles in physical amplitudes in the complex E-plane. With the full treatment of meson-meson interactions ( $\pi\pi - \pi K - \pi\eta - \eta\eta$  and  $\pi K - \eta K$ ), for the first time, the existence of the scalar  $\sigma(600)$  and  $\kappa(700)$  mesons are confirmed in one-meson-exchange model. There are two kinds of form factors in our model: the monopole and the Gaussian. Our recent results show that the poles  $\sigma$  and  $\kappa$  appear at around  $410 - i540\text{MeV}$  and  $650 - i20\text{MeV}$  for monopole form factors, respectively. For Gaussian form factors, the poles  $\sigma$  and  $\kappa$ , respectively, are at  $360 - i510\text{MeV}$  and  $649 - i190\text{MeV}$ .

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