Contribution ID: **40**   Type: **Parallel contribution**

Determination of the compositeness of a bound state by a and r_0. The role of the interaction range

We present an approach that allows one to obtain information on the compositeness of molecular states from combined information of the scattering length of the hadronic components, the effective range, and the binding

energy. We consider explicitly the range of the interaction in the formalism and show it to be extremely important

to improve on the formula of Weinberg obtained in the limit of very small binding and zero range interaction. The method allows obtaining good information also in cases where the binding is not small. We explicitly applyit to the case of the deuteron and the $D^*_{s0}(2317)$ and $D^*_{s1}(2460)$ states and determine simultaneously the value

of the compositeness within a certain range, as well as get qualitative information on the range of the interaction.

Authors: OSET, Eulogio; Dr SONG, Jing (School of Physics, Beihang University); Prof. DAI, Lian Rong (School of science, Huzhou University,)

Presenter: OSET, Eulogio

Track Classification: Theory for strong QCD