



NN $\pi$  3体アプローチによる長距離核力発生の可能性と $\pi$ -d散乱長  
A Possibility of the Long Range Nuclear Potential  
by the NN $\pi$  Three Body Approach and the Pion-Deuteron Scattering Length

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Difference between the above and under the three-body break up threshold is emphasized. Under the NN $\pi$  three-body break up threshold, the Born term of the three-body equation makes the one pion exchange NN potential which is an energy dependent two-body quasi (E2Q) potential. Such a E2Q potential could be Fourier transformed, and gives the r-space potential with the energy dependent. After an energy average, we obtained the usual r-space potential which is characterized by the well known Yukawa-type for the short range, but for the long range, the  $1/r^2$ -type, or the  $1/r^6$ -type, or the  $1/r^7$ -type potentials corresponding to the different parameters in the energy average treatment. The  $1/r^2$  potential leads the Efimov states, and the other two are the London-type and the Cassimere-type Van der Waals potentials. The E2Q potential method will be applied to the pion-deuteron scattering length calculation,

\* The talk will be given in English.

Feb 10(Tue.) 2015 15:30 ~  
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Abstract

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