

## SPATIAL DEPENDENCE OF PAIRING FIELD INDUCED BY THE EXCHANGE OF COLLECTIVE VIBRATIONS

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Pairing interactions commonly adopted in nuclear structure calculations are often parametrized in terms of a zero-range, density-dependent force, with phenomenological parameters, of the form<sup>1</sup>:

$$v(\vec{r}_1, \vec{r}_2) = \frac{V_0}{2}(1 - P_\sigma) \left[ 1 - \eta \left( \frac{\rho(\vec{r}_1)}{\rho_c} \right)^\alpha \right] \delta(\vec{r}_1 - \vec{r}_2). \quad (1)$$

However, the comparison with experimental data has not led until now to a clear understanding of the spatial character of the pairing force, in particular concerning whether it has surface or volume character.

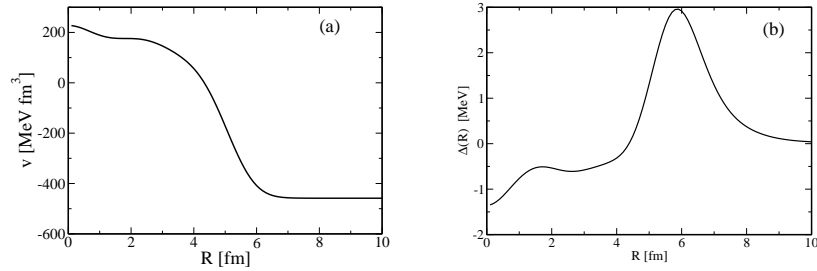


Figure 1. On the left side we show the spatial dependence of the local pairing interaction Eq.1 with the parameters obtained with our microscopic approach, while on the right the resulting pairing field for  $^{120}\text{Sn}$ .

An alternative description is based on microscopic calculations, adding the bare nucleon-nucleon force (Argonne  $v_{18}$ ) and the induced interaction arising from the exchange of collective low-lying vibrations, which can give rise to important isotopic effects <sup>2</sup>.

I will discuss the spatial dependence of the pairing field obtained with this calculations <sup>3</sup> trying to give a local approximation that will be parametrized in terms of zero-range interaction (cf. Eq.1); in Fig. 1a I report the resulting the pairing force obtained with our approach and in Fig. 1b the resulting pairing field.

### References

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