

Modified Derivative Scalar Coupling Model in Semi-infinite Nuclear Matter

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Abstract: Semi-infinite nuclear matter has been investigated in relativistic Thomas-Fermi and Hartree approximations based on the modified derivative scalar coupling model. Our results show that the spin-orbit potential has been improved by the tensor coupling. However, the surface tension and the surface thickness become considerably small with increasing of the tensor coupling constant. The effects of the σ -meson mass on the spin-orbit potential, on the surface tension, and on the surface thickness have also been discussed.

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Key words: RTF and Hartree approximations, semi-infinite nuclear matter, derivative scalar coupling

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