Cornell University Library

We gratefully acknowledge support from the Simons Foundation and member institutions

arXiv.org > nucl-th > arXiv:1106.0187

Search or Article-id

(Help | Advanced search)

All papers ▼   Go!

Nuclear Theory

Thomas-Fermi approximation to pairing in finite Fermi systems. The weak coupling regime

X. Viñas, P. Schuck, M. Farine

(Submitted on 1 Jun 2011)

We present a new semiclassical theory for describing pairing in finite Fermi systems. It is based on taking the $\hbar \to 0$, i.e. Thomas-Fermi, limit of the gap equation written in the basis of the mean field (weak coupling). In addition to the position dependence of the Fermi momentum, the size dependence of the pairing force is also taken into account in this theory. Along isotopic chains the Thomas-Fermi gaps average the well known arch structure shown by the quantal gaps. This structure can be almost recovered in our formalism if some shell fluctuations are included in the level density. We point out that at the drip line nuclear pairing is strongly reduced. This fact is illustrated with the behavior of the gap in the inner crust of neutron stars.

Comments:	9 pages, 4 figures, Many Body Conference 2011(Paris)
Subjects:	**Nuclear Theory (nucl-th)**
Cite as:	**arXiv:1106.0187** [nucl-th]
	(or **arXiv:1106.0187v1** [nucl-th] for this version)

Submission history

Which authors of this paper are endorsers?

Download:

- PDF
- PostScript
- Other formats

Current browse context:

nucl-th

< prev | next >

new | recent | 1106

References & Citations

- INSPIRE HEP
  (refers to | cited by)
- NASA ADS

Bookmark(what is this?)

Link back to: arXiv, form interface, contact.