



## Proton-neutron pairing and quartet correlations in nuclei

Prof. Nicolae Sandulescu

(National Institute of Physics and Nuclear Engineering, Bucharest, Romania)

The common treatment of proton-neutron pairing in  $N \cong Z$  nuclei relies on Cooper pairs and mean-field BCS-type models. However, for any spin-singlet ( $S=0$ ) and spin-triplet ( $S=1$ ) pairing interactions the ground state of  $N=Z$  nuclei is accurately described not by Cooper pairs but in terms of quartets [1-3]. Moreover, quartets remain relevant degrees of freedom for more general two-body interactions than pairing, indicating that quartetting is in fact a general feature in  $N=Z$  nuclei [4]. Using a formalism of quartets, I will discuss the competition between  $T=0$  and  $T=1$  pairing in  $N=Z$  nuclei [1-3], the effect of proton-neutron pairing on Wigner energy [5] and the role of isoscalar spin-aligned pairs in  $^{92}\text{Pd}$  [6].

1. N. Sandulescu, D. Negrea, D. Gambacurta, Phys. Lett. B751 348 (2015)
2. M. Sambataro, N. Sandulescu, C. W. Johnson, Phys. Lett. B770, 137 (2015)
3. M. Sambataro and N. Sandulescu, Phys. Rev. C93, 054320 (2016)
4. M. Sambataro and N. Sandulescu, Phys. Rev. Lett. 115, 112501 (2015)
5. D. Negrea and N. Sandulescu, Phys. Rev. C90, 024322 (2014)
6. M. Sambataro and N. Sandulescu, Phys. Rev. C91, 064318 (2015)

\* The talk will be given in English language..

Contact: Nuclear Physics Seminar Organizing Committee  
[npsoc@ribf.riken.jp](mailto:npsoc@ribf.riken.jp)  
<http://ribf.riken.jp/~seminar/>

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