

Abstract Submitted  
for the SES14 Meeting of  
The American Physical Society

**Identification of possible proton two-quasiparticle band in  $^{158}\text{Sm}$**

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SIAN, JINR — High-spin states in neutron-rich  $^{158}\text{Sm}$  have been re-investigated by measuring the prompt  $\gamma$ -rays emitted in the spontaneous fission of  $^{252}\text{Cf}$ . A new negative-parity band has been established up to spin 12. By comparing with the theoretical calculations [1], a two-quasiparticle proton state with  $\pi 5/2[532] \otimes \pi 5/2[413]$  configuration has been proposed for the band head. The level energies are similar to those of the known levels in the negative two-quasiparticle neutron band [2,3] as predicted by theoretical calculations [1]. The systematics of the two-quasiparticle states and bands in this region are discussed.

[1] Y-C Yang et al., J. Phys. **G37**, 085110 (2010).

[2] S.J. Zhu et al., J. Phys. **G21**, L57 (1995).

[3] G.S. Simpson et al., Phys. Rev. **C80**, 024304 (2009).

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Date submitted: 15 Sep 2014

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