# Measurement of the alignment correlation terms of the spin aligned $^{8}$B and $^{8}$Li for the detection of *G*-parity irregular term

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In the parity violating weak nucleon current, the *G* parity, which is the parity in the charge space, is another important symmetry to be tested. The *G*-parity may be broken because of the mass difference between mirror pairs or more fundamentally between up and down quarks. Recently, in the mass A = 12 system, *G*-parity irregular term was determined precisely by measuring the alignment correlation terms in the β-ray angular distributions of the purely spin aligned mirror pair $^{12}$B and $^{12}$N and was vanishingly small[2].

To set reliable discussion on *G*-parity irregular term, it is necessary to detect the term precisely in another mass system such as A = 8. This term has been detected in the α-β angular correlation experiments[1] for the A = 8 system. We have been detecting β-ray angular distributions of the purely spin aligned mirror pair $^{8}$B and $^{8}$Li.

The spin polarization is produced in the nuclear reaction process. Applying the NMR technique, the polarization is converted into positive and negative alignments with ideally no residual polarization. Fig. 1 is the result of this spin manipulations for $^{8}$B. As shown in Fig. 1, the sufficiently large alignment was produced.

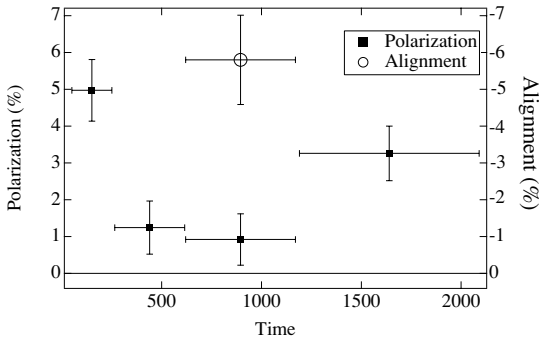


Fig. 1 Result of the spin manipulations.

Now we have been accumulating data of the alignment correlation term for $^{8}$B. We will report the result, together with that for $^{8}$Li.

References

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