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the study of the sampling readout electronics of MRPC

This post is to introduce the study of the electroncs design for the upgrade of the Endcap TOF of BESIII. MRPC will be used as the main detector unit. Two methods were studied. The first one is to use NINO and HPTDC, which have already be used in ALICE. And the second one is to use a self-designed ASIC with TOT function and use sampling chip to get the waveful the to caculate the time and charge. The sampling chip used here is DRS4 and anthoer multichannel ADC is needed. With these method we can get better time resolution. And the structure is not complicated. In the practical application, we can only put one board just close the output of MRPC and transfer digital data out. All the process of measurement will be done on this board.
With this method, we can make system simple and get better resolution.

Summary

A method of the time and charge measurement of MRPC is introduced.
The key techlogic is TOT measurement and fast sampling.

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