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A new data analysis technique for isochronous mass measurement at CSRe

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Storage ring plays an important role in atomic mass measurement. One of operation modes, the isochronous mass spectrometry, has been successfully operated at the experimental ring CSRe in IMP. This mode is based on the accurate determination of revolution time for the stored ions. However, due to instability of the magnetic fields of CSRe, the revolution time may drift, thus deteriorate the mass resolving power of the spectrometry. In this talk, a new data-analysis technique has been developed to correct the drift in the revolution time, thus yielding a mass resolving power of $(m/\Delta m) \sim 1.7 \times 105 (\text{sigma})$.

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