

## A test of time dilation with fast ${}^7\text{Li}^+$ ions at GSI

From September 27<sup>th</sup> until October 7<sup>th</sup> an experiment for testing time dilation of the Special Theory of Relativity has been performed at the experimental storage ring at the GSI Helmholtz center for heavy ion research with  ${}^7\text{Li}^+$  ions at a velocity of 33,8 % of the speed of light. Compared to earlier measurements at GSI the signal to noise ratio has been considerably improved and many systematic influences have been studied using the so called Lambda-spectroscopy. An example of a recorded signal can be seen in the picture. Furthermore saturation spectroscopy was realized for the first time with  ${}^7\text{Li}^+$  ions at these velocities. This method has the potential to improve the accuracy of the experiment, and to become therefore even more sensitive to hypothetical deviations from Special Relativity.

