

## First $^{129,127}\text{I}$ Iodine Measurements at CologneAMS

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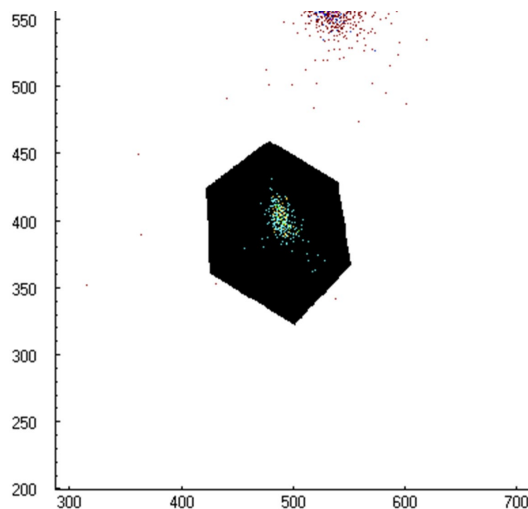
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In the Atacama Desert, one of the driest places in the world, fog plays an important role in ensuring the survival of plants with its moisture. This fog contains an increased proportion of the unstable rare  $^{129}\text{I}$  compared to  $^{127}\text{I}$  due to nuclear bomb tests in the South Pacific. As part of the CRC1211 project “Evolution at the Dry Limit”, research was carried out in the Atacama Desert on the so-called *Tillandsia landbeckii* plants. The AMS Iodine analysis of this *Tillandsia landbeckii* plants can be used to gain information about fog patterns and environmental conditions,

For this reason, the first Iodine measurements have been performed at the 6MV AMS system of CologneAMS. Samples covering the entire capabilities of the accelerator system were measured.  $^{129}\text{I}/^{127}\text{I}$  ratios of down to  $10^{-13}$  were achieved in this first measurement. During the measurement, a dependence of the iodine ratio and the ion current coming from the source became visible in samples with a high  $^{129}\text{I}/^{127}\text{I}$  ratio. In addition, a memory effect was analyzed, which means the effect of a measured sample on the following sample.

In this contribution we will present the current progress and the results of the first Iodine measurements in Cologne.



**Figure:** 2 dimensional representation of the  $^{129}\text{I}$  counts in the gas ionization detector used. The gas ionization detector consists of 4 plate condensers, which are placed one behind the other. The graph shows the counts in the first two capacitors against those in the last two. This is done to distinguish  $^{129}\text{I}$  from other ions and to suppress background, as these would be shown elsewhere in the graph. The region of interest in which the  $^{129}\text{I}$  counts are located and counted is shown in black.

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