



Contribution ID: 208 Contribution code: PSA-42

Type: Poster

## Development of $^{129}\text{I}$ measurement technology with the home-made compact AMS facility at CIAE

Monday, 21 October 2024 17:35 (20 minutes)

$^{129}\text{I}$  is a long-lived nuclide with very low nature level, but the presence of  $^{129}\text{I}$  in the environment has changed significantly since the beginning of the nuclear era. Accelerator mass spectrometer (AMS) is the most sensitive method for  $^{129}\text{I}$  measurement, which is widely used in environmental monitoring, geological evolution dating, nuclear activities tracking and other fields. For further expanding the applications of  $^{129}\text{I}$ , a home-made compact AMS facility has been developed by China Institute of Atomic Energy (CIAE), recently. In this paper, the measurement technology of  $^{129}\text{I}$  has been established with this facility. Charge state  $2+$  is selected at high-energy side and transmission efficiency of 55% for  $^{127}\text{I}^{2+}$  is obtained. The measurement sensitivity of  $^{129}\text{I}/^{127}\text{I} \approx 1.5 \times 10^{-14}$  has been achieved. At present, this facility can be used for routine measurement of  $^{129}\text{I}$ .

Keywords:  $^{129}\text{I}$ , compact AMS, home-made, measurement technology

### Student Submission

No

**Primary authors:** ZHANG, Wenhui; ZHAO, Qingzhang; HE, Ming (中国原子能科学研究院); XIU, Chengli; LI, Kangning; BAO, Yiwen; GUO, Wei; LI, Jianliang; SU, Shengyong; YOU, Qubo

**Presenters:** ZHANG, Wenhui; HE, Ming (中国原子能科学研究院)

**Session Classification:** Poster Session A

**Track Classification:** New and Advanced AMS Techniques