

## EXP1904: Reference reaction - Developing #437

Analyzing # 436 (Открыта): Reference reaction: Data analysis

### Missing mass of ${}^9\text{Li}$ from ${}^3\text{He}$ registered in coincidence with ${}^8\text{He}$

02/01/2020 02:19 AM - Vratislav Chudoba

<b>Status:</b>	Открыта	<b>Start date:</b>	02/01/2020
<b>Priority:</b>	Нормальный	<b>Due date:</b>	
<b>Assignee:</b>	Ivan Muzalevsky	<b>% Done:</b>	100%
<b>Category:</b>		<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>			
<b>Description</b>			
Provide missing mass of ${}^9\text{Li}$ from ${}^3\text{He}$ registered in the side telescopes in coincidence with ${}^8\text{He}$ registered in the central telescope.			
Provide a selection of ${}^8\text{He}$ in the central telescope in a file (e.g. in pdf format) as an attachment to this issue.			
Missing mass of ${}^9\text{Li}$ should be shown inside the text of the comment.			

#### History

##### #1 - 02/02/2020 04:43 PM - Ivan Muzalevsky

- File *he8\_ID.pdf* added

- File *he6\_ID.pdf* added

- % Done changed from 0 to 50

##### #2 - 04/27/2020 07:56 PM - Ivan Muzalevsky

For the analysis, the parameters from the [issue 458](#) were used.

### Identification

Realization of the identification of the  ${}^8\text{He}$  in the central telescope is attached: *he8\_ID.pdf*

Green dots - considered  ${}^8\text{He}$  events,

Blue dots - coincidences with  ${}^3\text{He}$  events from some side telescope

Red dots - coincidence of considered  ${}^8\text{He}$  with  ${}^3\text{He}$  events from some side telescope

Realization of the identification of the  ${}^6\text{He}$  in the central telescope is attached: *he6\_ID.pdf*

Green dots - considered  ${}^6\text{He}$  events,

Blue dots - coincidences with  ${}^3\text{He}$  events from some side telescope

Red dots - coincidence of considered  ${}^6\text{He}$  with  ${}^3\text{He}$  events from some side telescope

The presented identification realizations in the attached pdf files was performed with not full statistics, because the CsI amplification were changed during the experiment. And as far as we do not have CsI calibration parameters, I can't provide ID plot with full statistics. That is why, the amount of coincidences found in pdf files can be lower that in the MM histogram.

### Missing-mass spectrum

At the following picture of the MM summerd from all 4 telescopes of the  ${}^9\text{Li}$  reconstructed from  ${}^3\text{He}$  is presented:

- Top left:
  - black line: all  ${}^3\text{He}$  events from side telescopes
  - red line:  ${}^3\text{He}$  events in coincidence with  ${}^9\text{Li}$  events from central telescope
  - green line:  ${}^3\text{He}$  events in coincidence with  ${}^6\text{He}$  **OR**  ${}^8\text{He}$  events from central telescope
- Top right: green spectra from the top left pic (MM spectra reconstructed from  ${}^3\text{He}$  events in coincidence with  ${}^6\text{He}$  **OR**  ${}^8\text{He}$  events from central telescope)
- Bottom left: MM spectra reconstructed from  ${}^3\text{He}$  events in coincidence with  **${}^8\text{He}$**  events from central telescope
- Bottom right: MM spectra reconstructed from  ${}^3\text{He}$  events in coincidence with  **${}^6\text{He}$**  events from central telescope

mm\_9li.png

**#3 - 04/27/2020 07:56 PM - Ivan Muzalevsky**

- File deleted (he8\_ID.pdf)

**#4 - 04/27/2020 07:56 PM - Ivan Muzalevsky**

- File deleted (he6\_ID.pdf)

**#5 - 04/27/2020 08:32 PM - Ivan Muzalevsky**

- File he6\_ID.pdf added

- File he8\_ID.pdf added

**#6 - 04/27/2020 08:32 PM - Ivan Muzalevsky**

- % Done changed from 50 to 100

**Files**

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he6_ID.pdf	17.6 MB	04/27/2020	Ivan Muzalevsky
he8_ID.pdf	16.5 MB	04/27/2020	Ivan Muzalevsky