

## **Progress Report 2014-2015**

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NUCLEAR REACTION DATA GROUP at ATOMKI  
(S. Takács)

### **Introduction**

The working area of the Atomki Nuclear Reaction Data Group is measurement, compilation, evaluation and application of low and medium energy charged particle induced nuclear reaction data. The research is done in international collaborations. Systematic experimental activation cross section data measurements are performed in international collaborations using proton beams up to 100 MeV and deuteron beams up to 50 MeV. Additionally alpha and  $^3\text{He}$  particles induced nuclear reactions are also investigated. Data compilation and data evaluation are mainly connected to running international projects.

### **Staff**

The staff of the Atomki Nuclear Reaction Data Group has been changed since last July. The number of experimental physicist officially reduced to 4 (since F. Tarkanyi had retired, but continued to work voluntarily). One of the two radio chemist is working only in part time since last July.

Effective EXFOR compilation work is done by one physicist (S. Takacs). Since January 2015 a PhD student joined us and work on EXFOR data compilation on voluntary base.

### **Experimental work**

Systematic investigations of excitation functions of charged particle induced nuclear reactions needed for optimizing production of radioisotopes for use in diagnostic and radiotherapy treatments are continued during the last period. Irradiations are performed in the frame of different collaborations at cyclotrons in Atomki, Hungary, VUB and LLN, Belgium and Riken, Japan.

### **Data compilations and evaluation**

The newly measured data are compiled in EXFOR format. Our responsibility to compile experimental data of charged particle induced nuclear reactions reported from Debrecen, Brussels and Jülich.

In the last year about 25 papers containing new experimental cross section data were published by our group and a total of 38 papers were compiled in EXFOR.

Beside data measurements compilation and evaluation of earlier measured data are also performed for selected nuclear reactions. Results of these compilation works are part of larger international projects (CRP) and/or published in international scientific journals.

## **EXFOR statistics: compiled in 2014-and 2015**

<b>Number of new entries:</b>	<b>38</b>
<b>Number of subentries with new data:</b>	<b>381</b>
<b>Number of data lines:</b>	<b>8470</b>

## **Participations in CRPs**

- Accelerator-based Production of Molybdenum/Technetium-99m(2012-2015)
- Nuclear Data for Charged-particle Monitor Reactions and Medical Isotope Production (2012–2015 )