

In 2009, I applied to an international competition organized in Hungary, at international mobility HUMAN-MB08 B, with the "High precision measurement Astrophysical factor for the $^3\text{He} + ^4\text{He}$ reaction in our Sun Which Takes place on a large energy scale" project, and **the project was accepted**. Funding came from NKTH-OTKA-EU FP7 (Marie Curie Actions) which stands for **Hungarian National Office for Research and Technology (NKTH)**, now transformed in **National Innovation Office , Hungarian Scientific Research Fund (OTKA)** and **European Union EU's 7th Framework Programme (FP7)**. The 82 409 OTKA project that I led as **PI (project investigator)**, was entirely done at ATOMKI (Institute of Nuclear Research of the Hungarian Academy of Sciences), Debrecen, Hungary, with the help of the ATOMKI Nuclear Astrophysics group, in the period 2010-2012.

2010-2012 As Project Investigator, in the Nuclear Astrophysics group from **ATOMKI, Debrecen, Hungary**, I could perform the experiment $^3\text{He} + ^4\text{He} \rightarrow ^7\text{Be} + \gamma$ in the energy range of $E_{\text{CM}} = 1.5\text{MeV} - 2.5\text{MeV}$. The financial support of 24.000.000 HUF came from the **NKTH-OTKA-EU FP7 (Marie Curie Actions)**.

I collaborated with dr. Fülöp Zsolt and dr. Gyürky György, carrying

- Complex simulation activities,
- Equipment calibration,
- Experimental activities
- Results dissemination
- Data analysis activities.

On 4th November 2010 I lead the international workshop-ul at ATOMKI, on the proposed experiment $^3\text{He}(^4\text{He},\gamma)^7\text{Be}$ (http://www.atomki.hu/workshop_20101104_announcement.html).

During the two years of activity at the ATOMKI, I

- held internal seminars at ATOMKI,
- wrote annual reports for ATOMKI
- wrote annual reports on the development stages of the project for OTKA
- presented the results of our research at international conferences
- presented the results of our research at invited seminars in other institutes
 - o ELTE (Eötvös Loránd University) University, Budapest
 - o REA (Research Executive Agency), FP7 Marie Curie Actions, **National Innovation Office, Budapest, Hungary.**

The reaction chamber was built by Halász Zoltán, a team member, as well as many other devices. The activation method steps were followed, as steps already present in other research positions.

In addition, I performed characterization of the Ni foils (thickness, thickness uniformity, checking for pin-holes in the thin material) used in the reaction chamber as

windows. **For the first time**, it could be measured the deformation for the Ni window, thickness of 1 μ m, under the ^3He gas pressure around 230 torr, due to a home made device using a laser beam.

Results had been published.