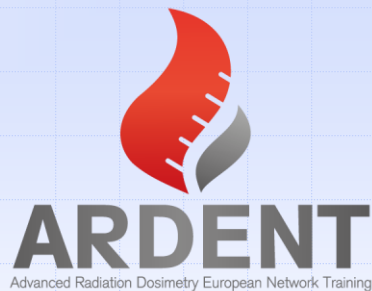


Early Stage Researcher 9: November 2012 – October 2013

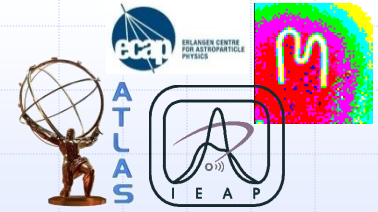
Benedikt Bergmann

Institute of Experimental and Applied Physics, Czech Technical University in Prague, Czech Republic

MILANO - 11.10.2013

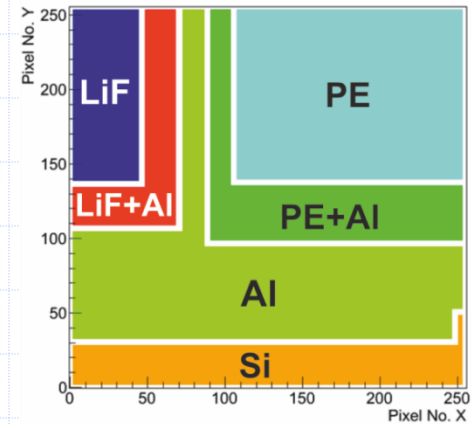


Early Stage Researcher 9: Benedikt Bergmann



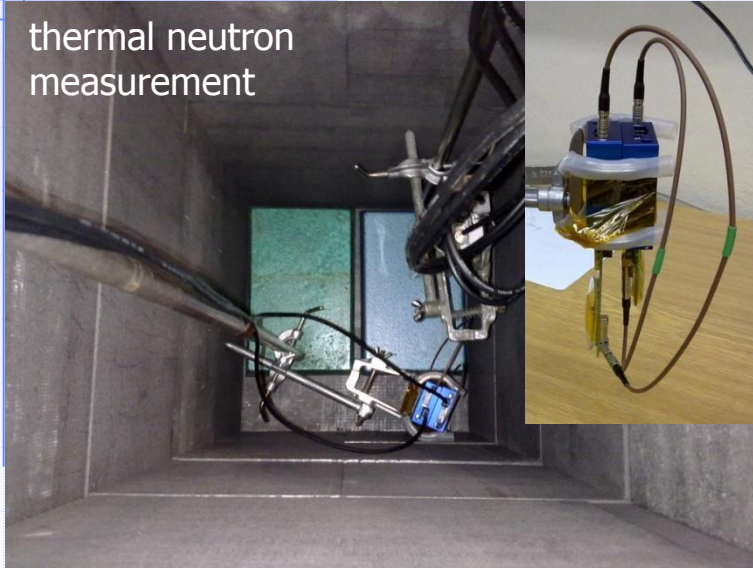
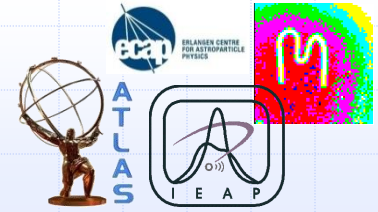
11.10.2013

- ❑ PhD student at Friedrich-Alexander University Erlangen
- ❑ Hobbies:
 - Sports (football, running, cycling, badminton,...)
 - Music (trumpet, keyboard)
- ❑ Task within the ARDENT project
 - Researcher at Institute of Experimental and Applied Physics, Czech Technical University in Prague
 - Evaluation of data taken by MPX/TPX detectors in mixed radiation fields (e.g ATLAS detectors)

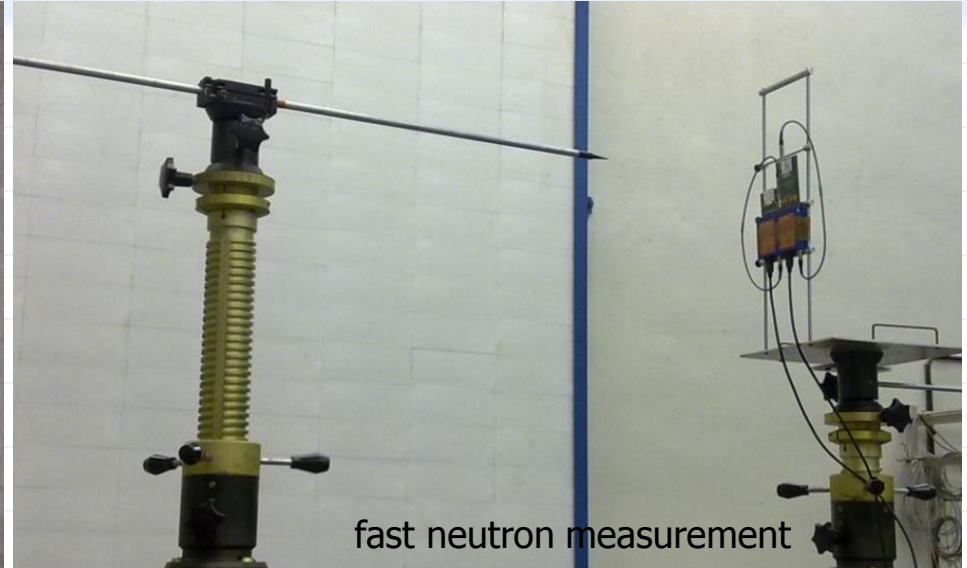


Benedikt Bergmann - ARDENT

Experimental Activities: Czech Metrological Institute



thermal neutron measurement

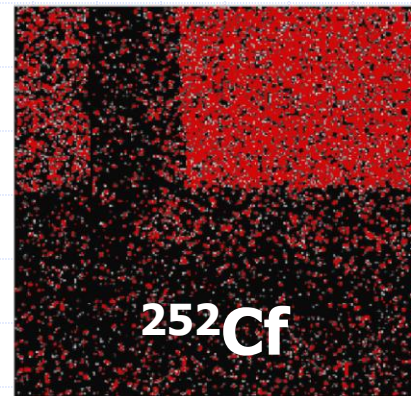


fast neutron measurement

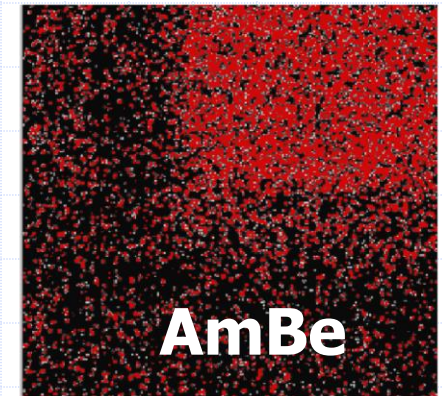
Thermal neutrons are reliably detected with an efficiency of $\sim 1\%$ below the LiF convertor layer



thermal

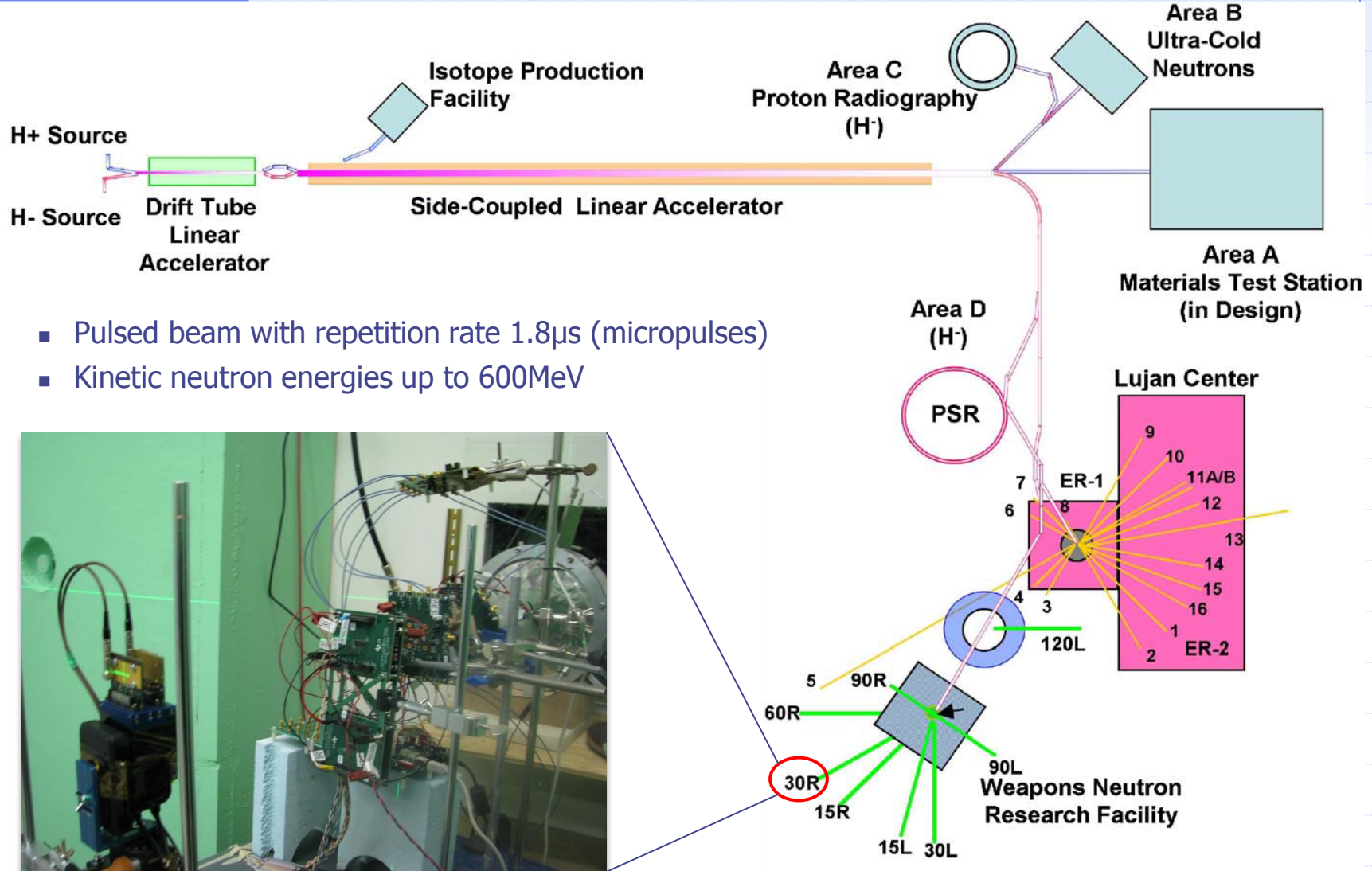
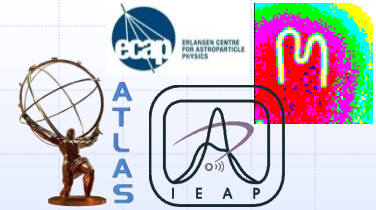


^{252}Cf

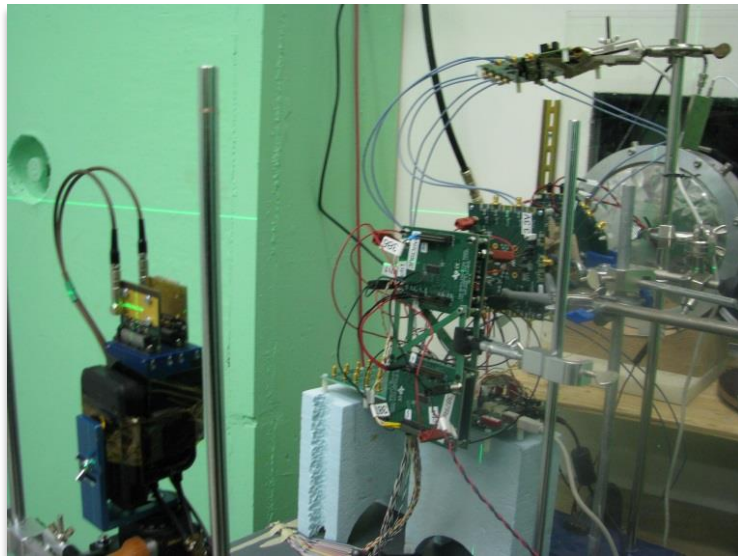


AmBe

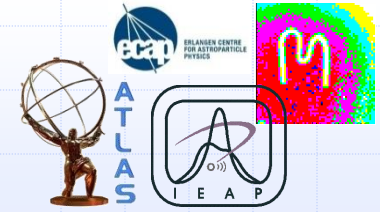
Experimental Activities: Los Alamos Neutron Science Center



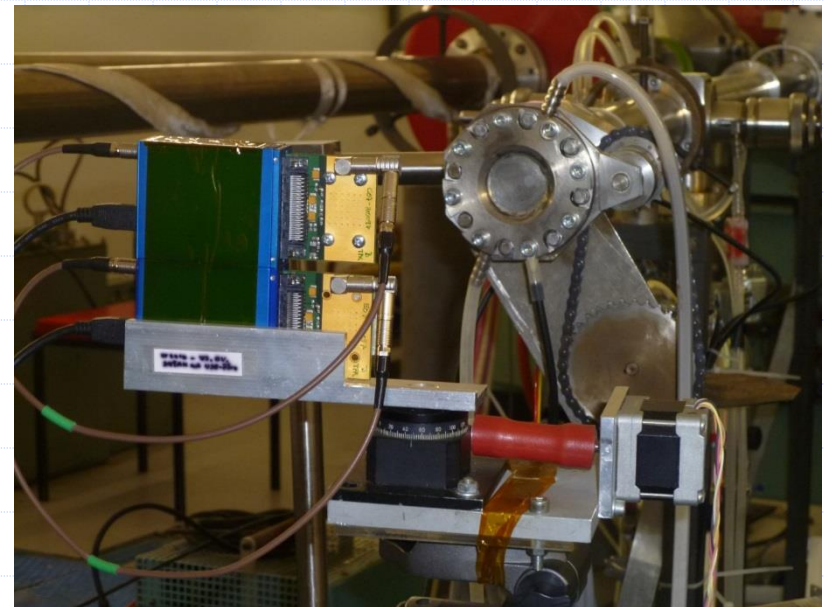
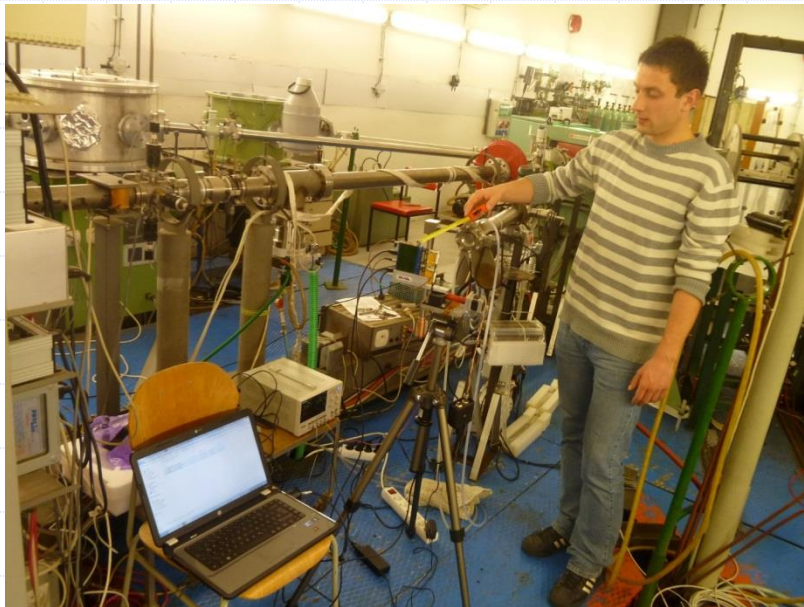
- Pulsed beam with repetition rate 1.8μs (micropulses)
- Kinetic neutron energies up to 600MeV



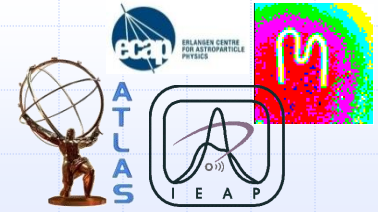
Experimental Activities: Van de Graaff Accelerator in Prague



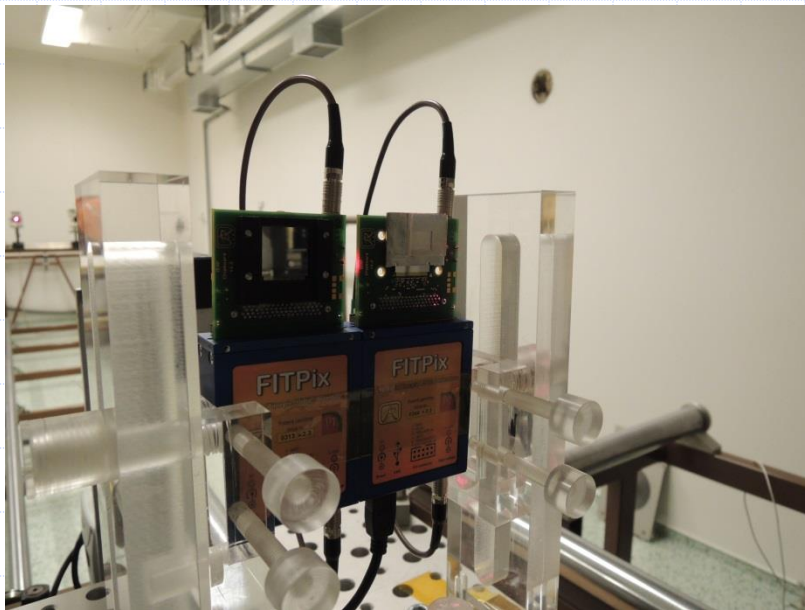
- ❑ Several measurements with TPX devices at Van-de-Graaff accelerator in Prague
 - Neutrons in the energy range 14-17 MeV (D-T reactions)
 - Neutrons keV region (p-T reactions)
 - Neutrons around 4 MeV (D-D reactions)



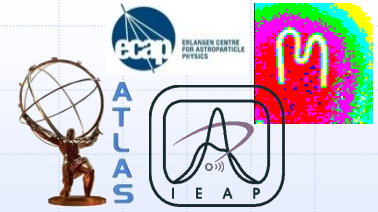
Experimental Activities: National Radiation Protection Institute (SURO) in Prague



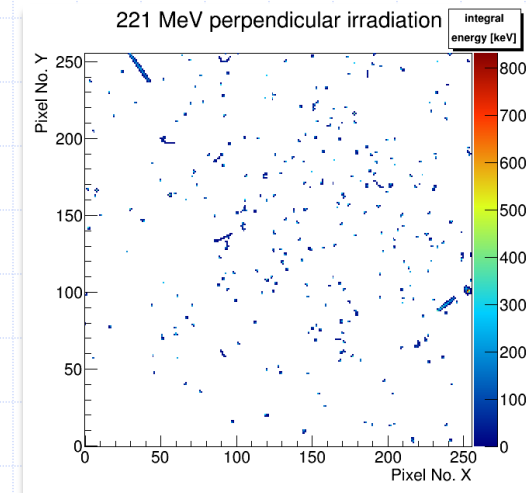
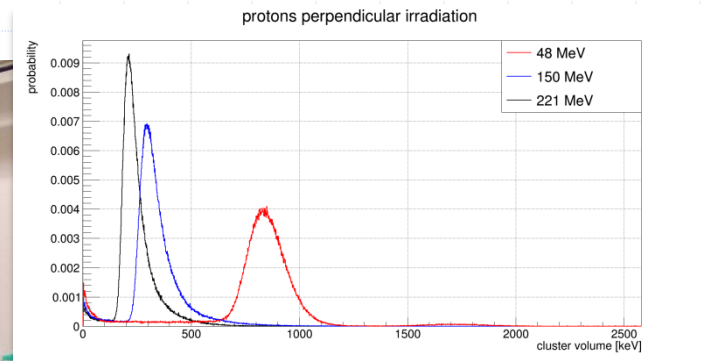
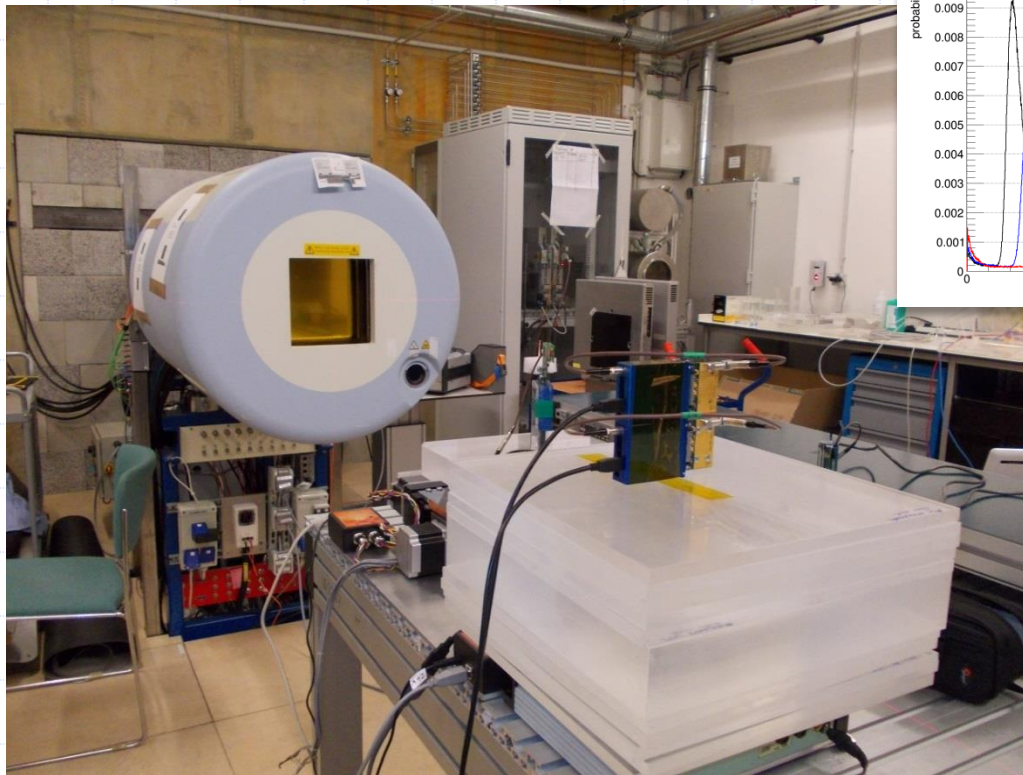
- Exposure of TPX to different radiation fields with well defined dose rates
 - Narrow Spectra (N30, N40, N60, N80, N100, N120, N150)
 - Co-60
 - Cs-137



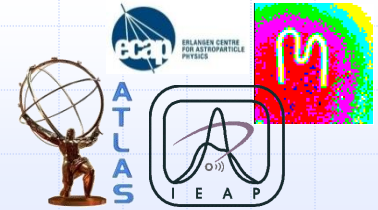
Experimental Activities: German Center for Cancer Research (DKFZ) in Heidelberg



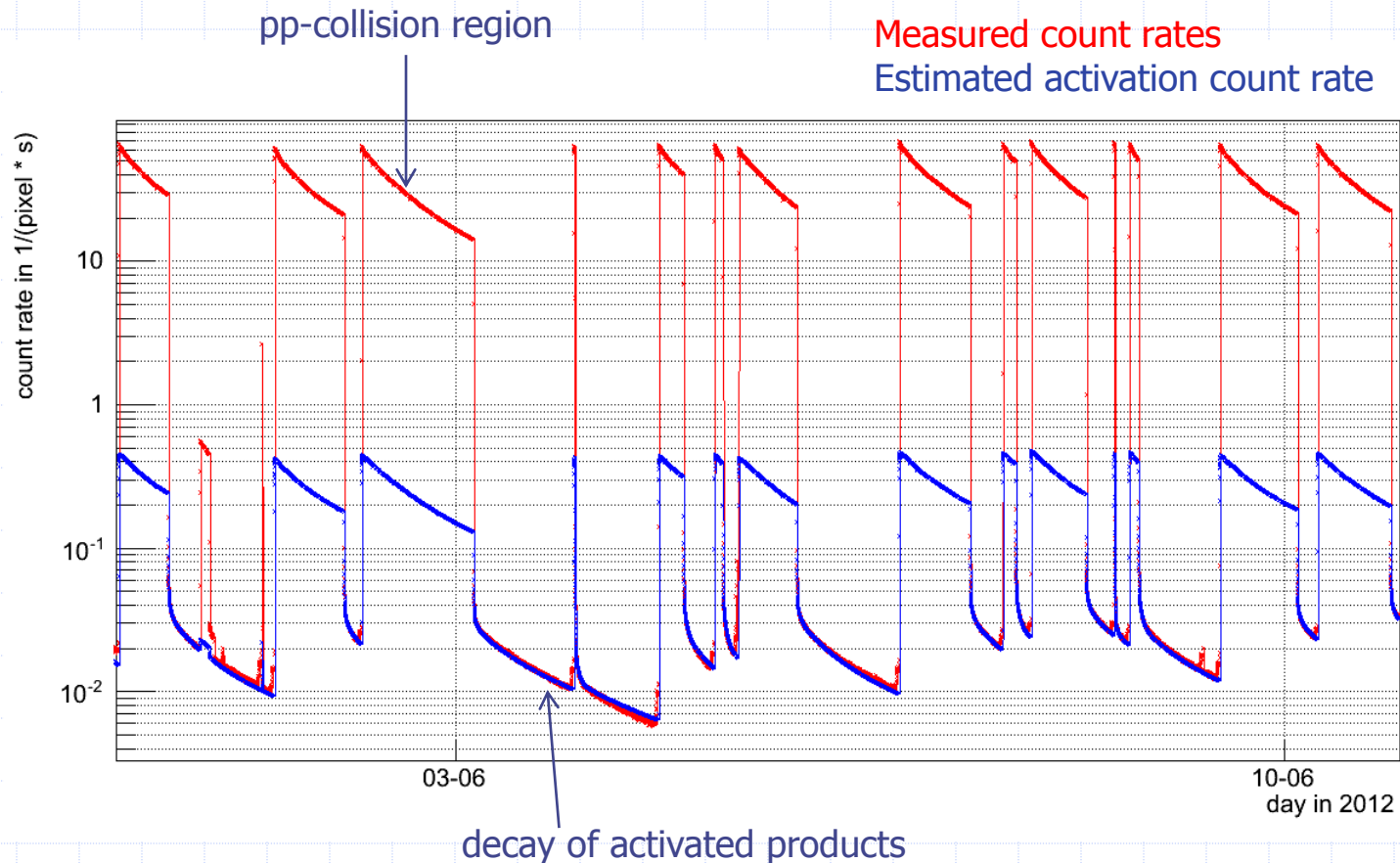
- Measurement in different monoenergetic proton fields with a TPX at DKFZ (German Center for Cancer Research) in Heidelberg, Germany



Conferences: Tagung der Deutschen Physikalischen Gesellschaft in Dresden



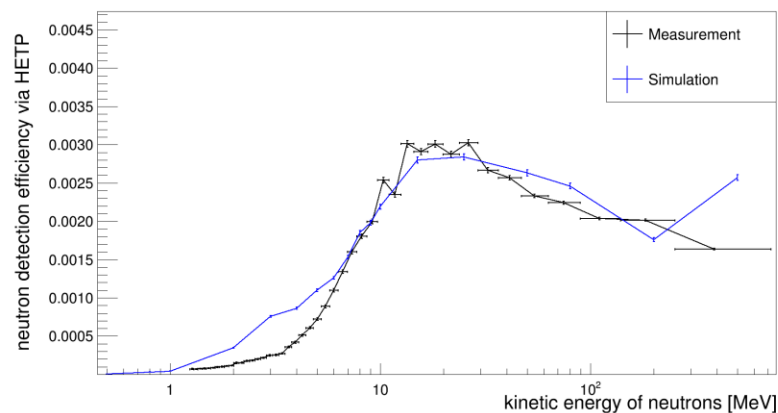
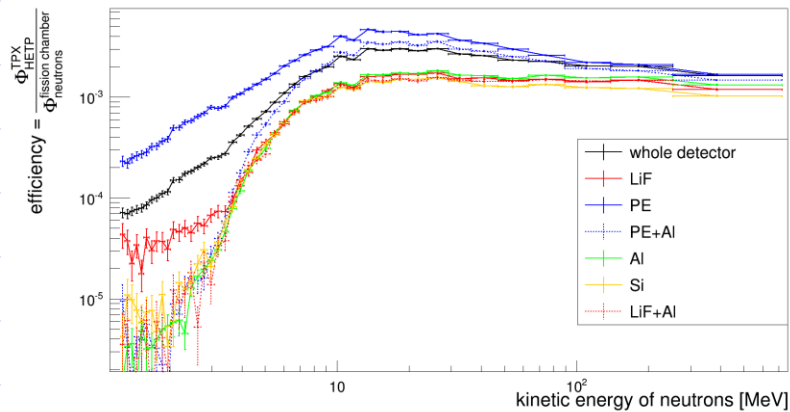
- Presentation: "Studies on Activation in the ATLAS cavern with MPX Detectors"



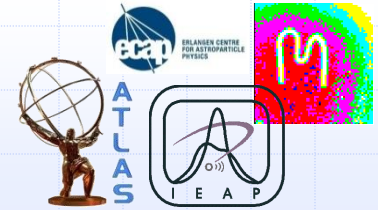
Conferences: International Workshop of Radiation Imaging Detectors in Paris



- Poster Presentation: "Measurement of Fast Neutron Interactions in Silicon by Means of Timepix Detectors"



Workshops, Training and other Activities



□ Workshops

- 1st Annual ARDENT workshop in Vienna
- MPX meeting at CERN
- ECAP Seminar ("The ARDENT Project and Neutron Detection with TPX Detctors") in Erlangen
- Joint International Workshop on Off-Site Gamma Dose Rate and Ground Contamination Measurements in Freiburg

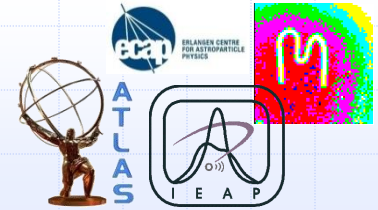
□ Training

- Czech language training
- Training and test on management and radiation safety at Los Alamos Neutron Science Center

□ Anticipated Publications

- "Measurement of the double K-Shell vacancy creation probability in the electron capture decay of Fe-55 with a photon counting pixel detector" (together with Dr. Thilo Michel)
- "Measurement of Fast Neutrons with Timepix Detectors" (IWoRID proceeding)

Future Activities: Experiments, Secondment and planned Training



❑ **Experimental**

- Perform measurements in different proton fields (following up the measurements at DKFZ in Heidelberg)
- Further measurements at van de Graaff-accelerator in Prag (neutrons of different energies)
- Los Alamos Neutron Science Center (December 2013): Investigate a wider energy range (especially to lower energies)

❑ **Secondment**

- ESA-ESTEC Noordwijk (November 2013), Netherlands

❑ **Other Training**

- Czech language courses – ongoing

Thank you for your attention!

