DR. ATTILA KRASZNAHORKAY JR.

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Personal Information

Born on 16th June 1981 in Debrecen, Hungary. My father, Dr. Attila Krasznahorkay is a nuclear physicist, and my mother Mária Kripkó is a mathematics and physics teacher. I have a sister, Ilona Krasznahorkay who is a statistical analyser at a Hungarian bank.

Employment

LD Staff, CERN - 2016 - Present
As a member of the ATLAS Data Processing (ADP) group.

Fellow, CERN — 2013 - 2016
As a member of the ATLAS Data Processing (ADP) group.

Research Scientist, New York University — 2009 - 2013
As a member of the Experimental Particle Physics group.

Young Researcher, Institute for Nuclear Research of the Hungarian Academy of Sciences (ATOMKI) — 2007 - 2009
As a member of the Theoretical Physics Section of the institute.

Doctoral Student, CERN — 2004 - 2007
As a member of the ATLAS Trigger (ATR) group.

Education

University of Debrecen — PhD in Physics, 2009
Thesis: "*QCD Cross Section Measurements With the OPAL and ATLAS Detectors*"

University of Debrecen — MSc. in Physics, 2004
Thesis: "*Studying Inclusive Jet Production in Photon-Photon Collisions*"

Spoken Languages

- Hungarian - Native speaker
- English - Very proficient (C2), used in every day work
- German - Basic knowledge (B1), using it very infrequently
- French - Knowledge on just the most basic level, never formally studied

Awards and Scholarships

ATLAS Outstanding Achievement Award — 2016
For the development and implementation of ATLAS's analysis model for LHC's Run-2.

Hungarian State Scholarship — 2001 - 2004

Special Award, Academic Student Conferences (TDK) — 2003
Thesis: "*Studying the α-decay of Heavily Deformed Nuclear States*"

Special Award, Academic Student Conferences (TDK) — 2001
Thesis: "*Studying the Fission of Hyper-deformed Nuclear States With a New Data Acquisition System*"

Professional Experience

Convener of the ATLAS Accelerators Group - 2019 - Present
Organising the work in ATLAS's offline software for using heterogeneous hardware (especially GPUs) efficiently as part of our processing.

Convener of the HSF Frameworks Group - 2019 - Present
Setting up discussions between HEP experiments related to software framework development. (https://hepsoftwarefoundation.org/workinggroups/frameworks.html)

Convener of the ATLAS Analysis Software Group — 2013 - 2019
The Analysis Software Group (ASG) in ATLAS is responsible for ensuring that the software required for physics analyses is available and tested. The group is the analysers' primary connection to the different software groups of ATLAS.

In this position I played a leading role in organising the software developments of ATLAS during Long Shutdown 1 (LS1), which lead to a new reconstruction file format in the experiment, as well as a new "data analysis model".

Member of the Higgs Physics Group of ATLAS — 2012 - 2013
Took part in measuring the spin / parity properties of the newly discovered particle.

Manager of the NYU Tier 3 cluster — 2011 - 2013
Took a major part in the purchase of a 144 core cluster for the NYU particle physics group. Once delivered, took part in organising the setup of the hardware, and took care of setting up the software infrastructure on it.

Trigger Contact for the Top Physics Group of ATLAS — 2010 - 2013
Represented the Top Physics Group in the Trigger Menu Coordination Group during the initial data taking of ATLAS.

Leader of the ATLAS Trigger Analysis Tools Group — 2009 - 2012
Was responsible for making sure that trigger data for physics analysis is available for the users in all the various file formats that ATLAS had at the time, and that they have all the necessary tools to analyse this data.

Member of the Muon Trigger Group of ATLAS — 2005 - 2012
Helped with optimising the configuration of the LVL1 muon trigger hardware, which was used during the high luminosity data taking of LHC's Run 1. While implementing the simulation of multiple parts of the LVL1 muon trigger.

Publications

The following are a selection of publications that I contributed to.

1. G. Abbiendi et al. [OPAL Collaboration], "*Inclusive Jet Production in Photon-Photon Collisions at $\sqrt{s_{ee}}$ from 189 to 209 GeV*", Phys. Lett. B 658 (2008) 185-192

    - Main author of the paper.

2. S. Ask et al. (22 authors including A. Krasznahorkay), "*The ATLAS central level-1 trigger logic and TTC system*", Journal of Instrumentation (JINST) 3 P08002 (2008), *http://dx.doi.org/10.1088/1748-0221/3/08/P08002*

    - Played a major role in designing the hardware that detects overlaps of the same muon leaving tracks in multiple muon chambers.

3. G. Aad et al. [ATLAS Collaboration], "*The ATLAS Experiment at the CERN Large Hadron Collider*", Journal of Instrumentation (JINST) 3 S08003 (2008), *http://dx.doi.org/10.1088/1748-0221/3/08/S08003*

    - Made multiple studies using the LVL1 trigger simulation of the ATLAS experiment.

4. G. Aad et al. [ATLAS Collaboration], "*Measurement of the top quark-pair production cross section with ATLAS in pp collisions at $\sqrt{s}$ =7 TeV*", Eur. Phys. J. C 71 (2011) 1577 [arXiv:1012.1792 [hep-ex]]

    - Organised and contributed to the trigger efficiency measurements of the analysis.

5. G. Aad et al. [ATLAS Collaboration], "*Evidence for the spin-0 nature of the Higgs boson using ATLAS data*", Phys. Lett. B 726 (2013) 120-144

    - Took part in the analysis of the $H \rightarrow 4l$ decay channel.

6. A. J. Krasznahorkay et al. (14 authors including A. Krasznahorkay), "*Observation of Anomalous Internal Pair Creation in ^{8}Be: A Possible Indication of a Light, Neutral Boson*", Phys. Rev. Lett. 116 (2016) 042501

    - Wrote the data acquisition software of the experiment, and took part in the statistical analysis of its results.