

A decade of Academic Adventures:
From PhD to Present

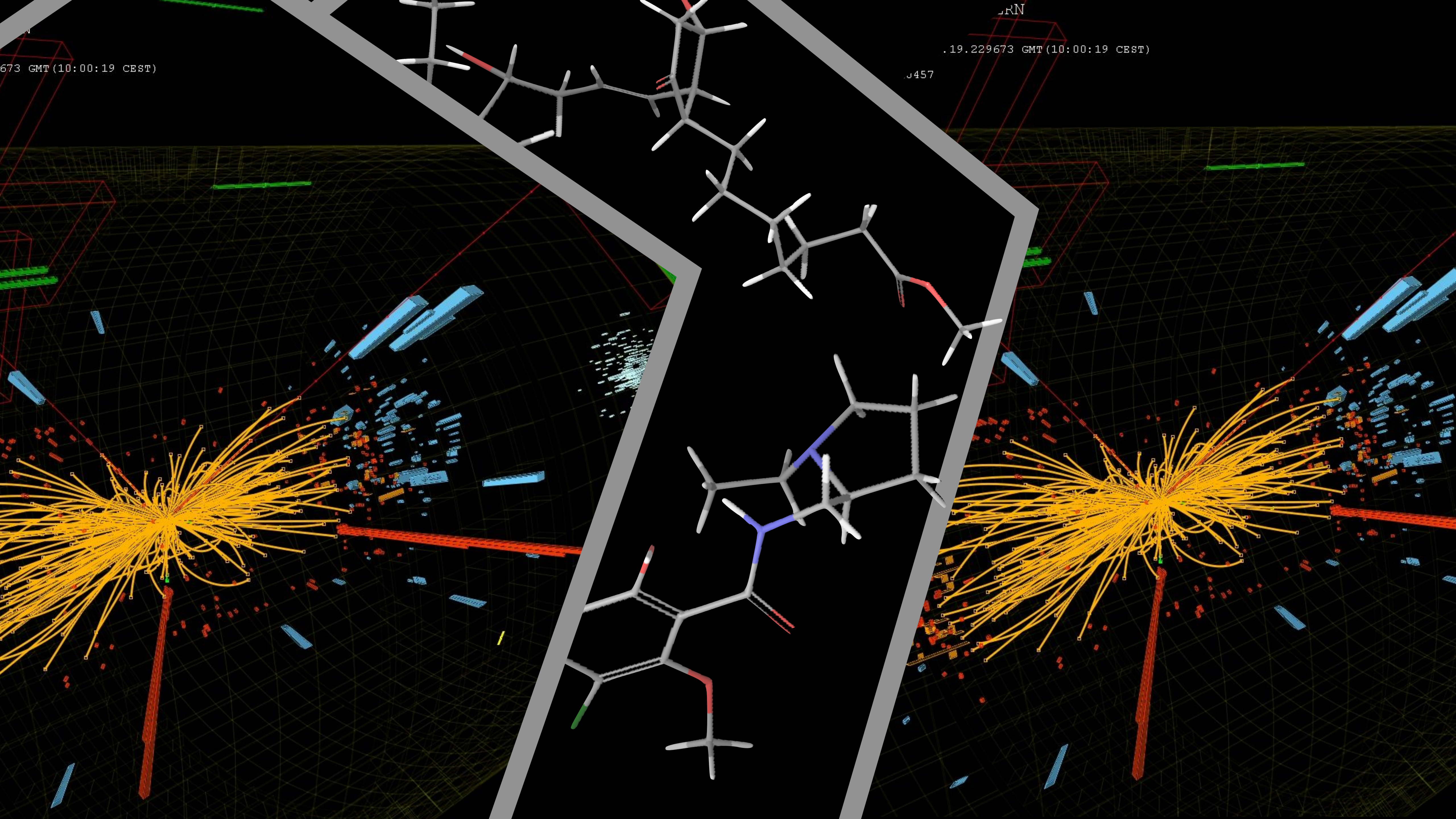
Ece Asilar

Hanyang University
Seoul, Republic of Korea

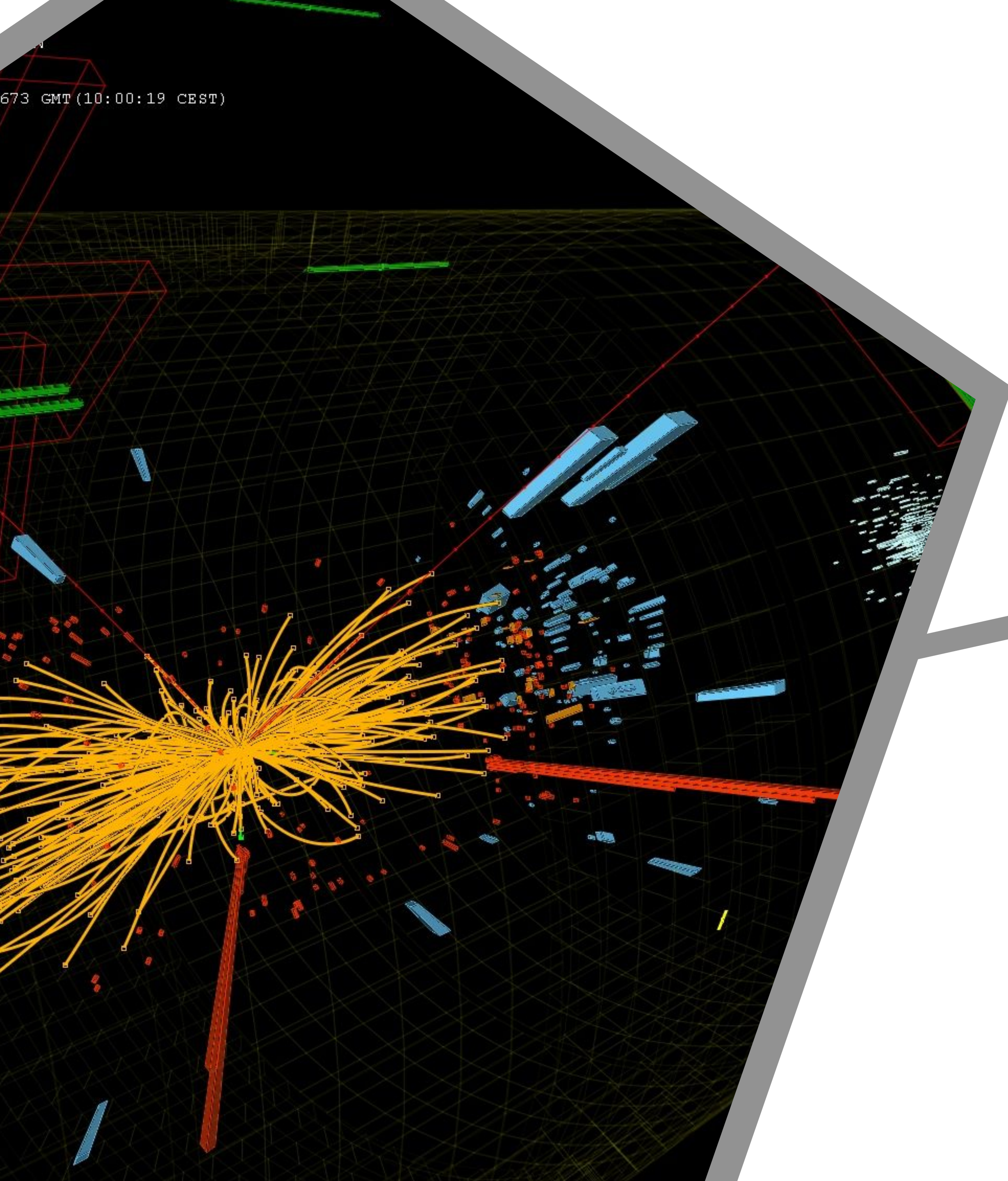
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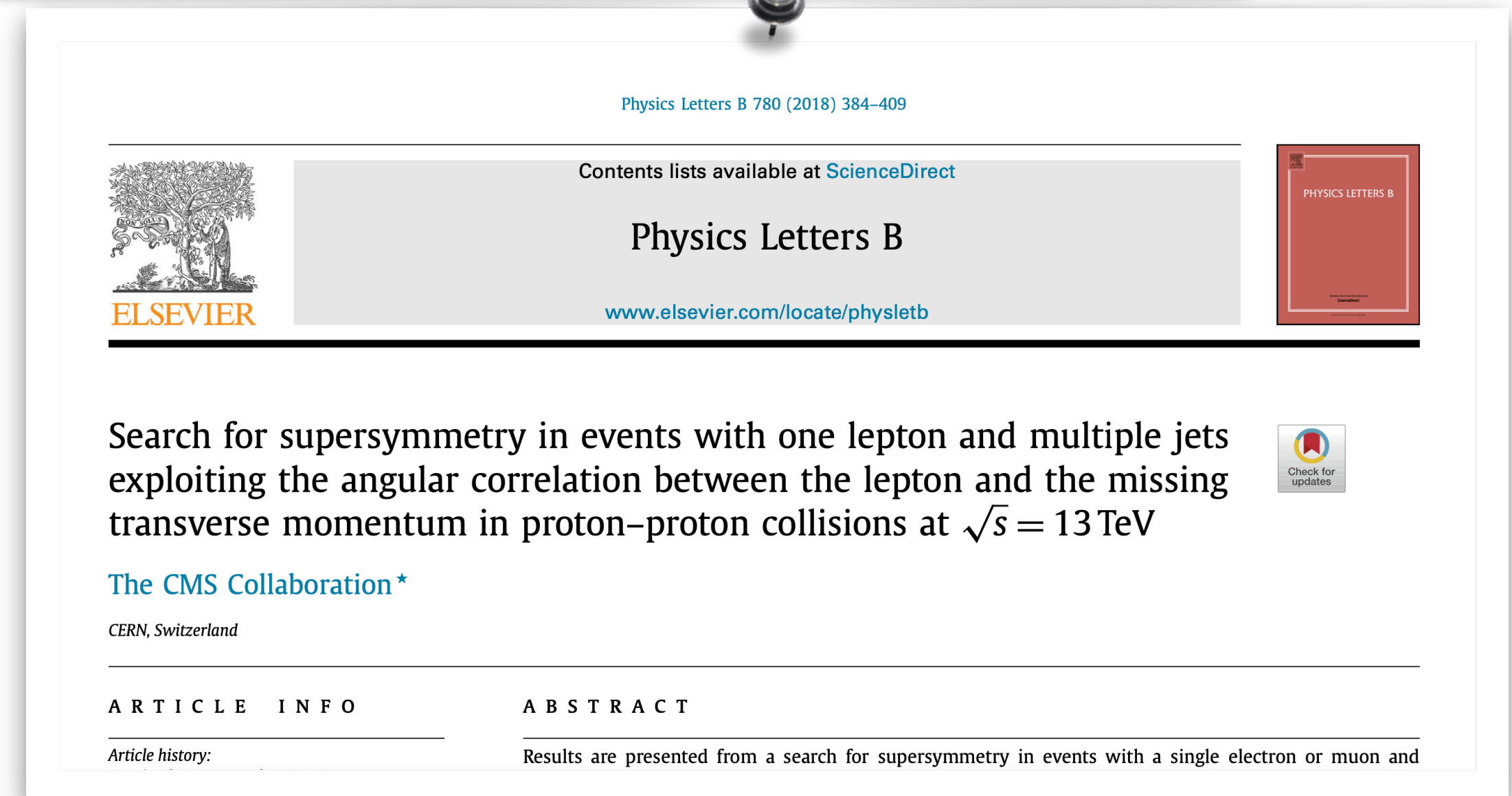
Started my PhD in August 2014 PhD
in Physics at TU Wien

Supervisors:
Robert Shoefbeck
Wolfgang Adam

DK Supervisor:
Claudia-Elisabeth Wulz
Dr. Prof. Jochen Schieck



The Highlights

- Friendships
- Many talks in local events
- 3 talks in international conference/ workshop
- 3 CMS publications
- DK retreats
- Stay abroad
- DK student representative
- Journal clubs
- Single lepton SUSY search
in Collaboration: ACDVF Group




Physics Letters B 780 (2018) 384–409

Contents lists available at [ScienceDirect](#)

 **Physics Letters B** 

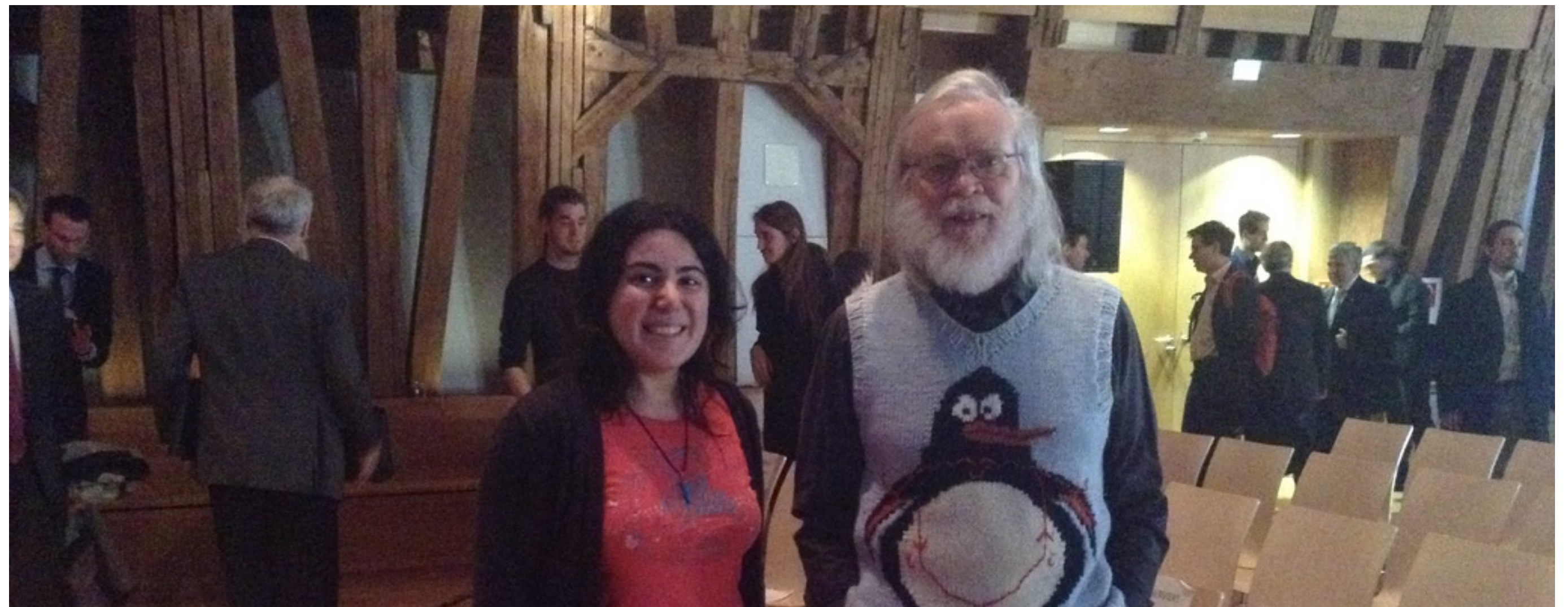
www.elsevier.com/locate/physletb

Search for supersymmetry in events with one lepton and multiple jets exploiting the angular correlation between the lepton and the missing transverse momentum in proton–proton collisions at $\sqrt{s} = 13$ TeV 

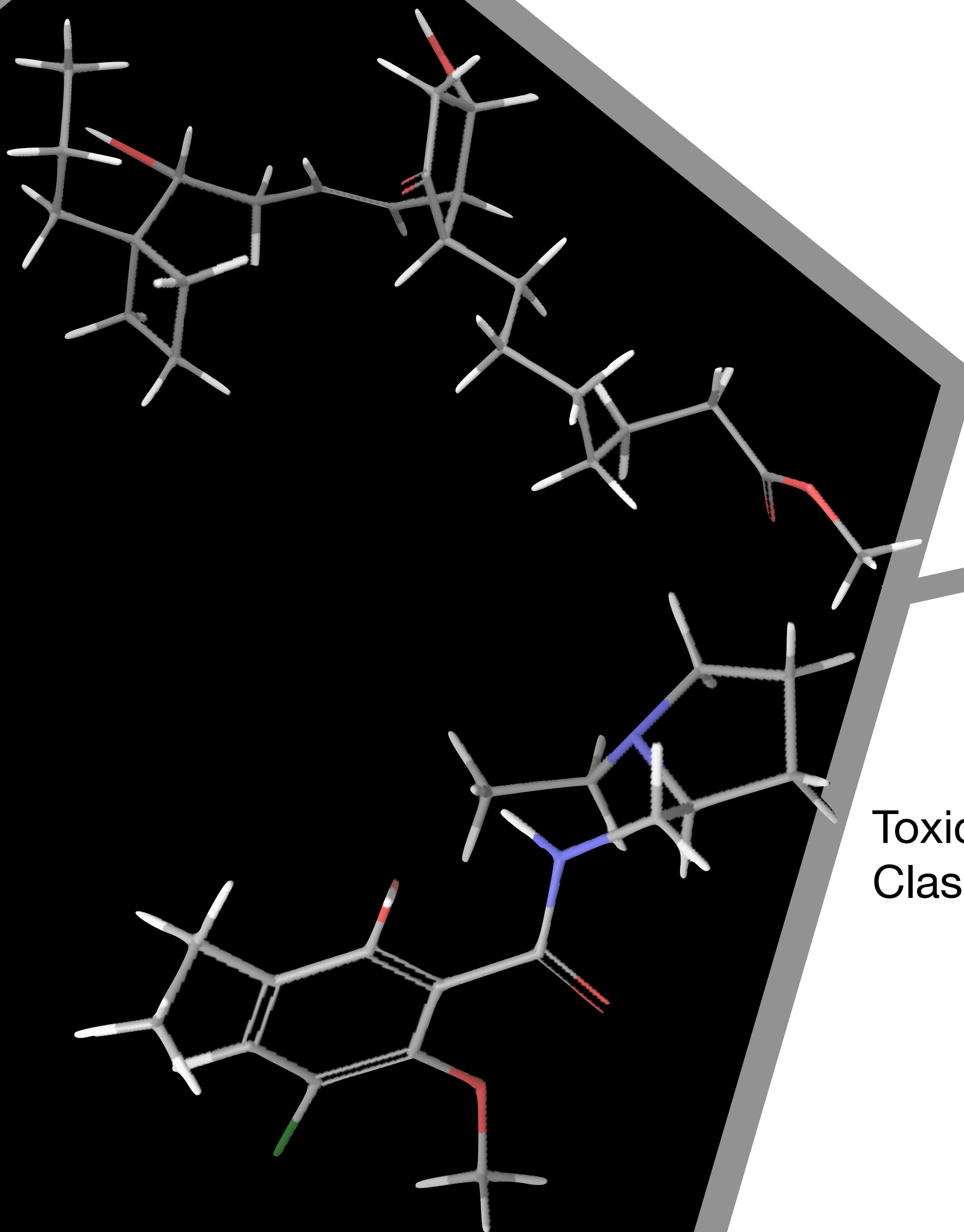
[The CMS Collaboration*](#)
CERN, Switzerland

ARTICLE INFO ABSTRACT

Article history: Results are presented from a search for supersymmetry in events with a single electron or muon and







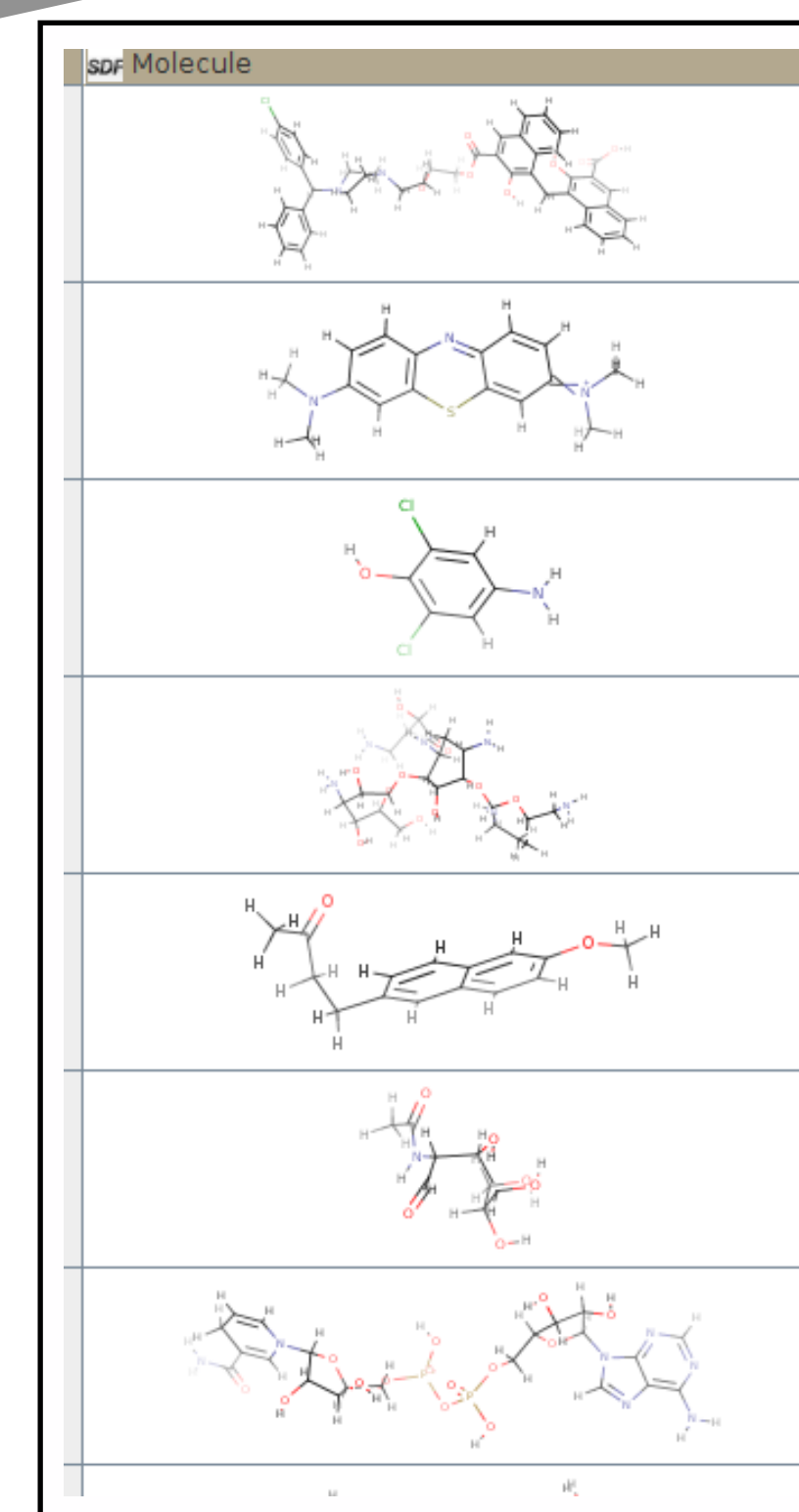
universität
wien



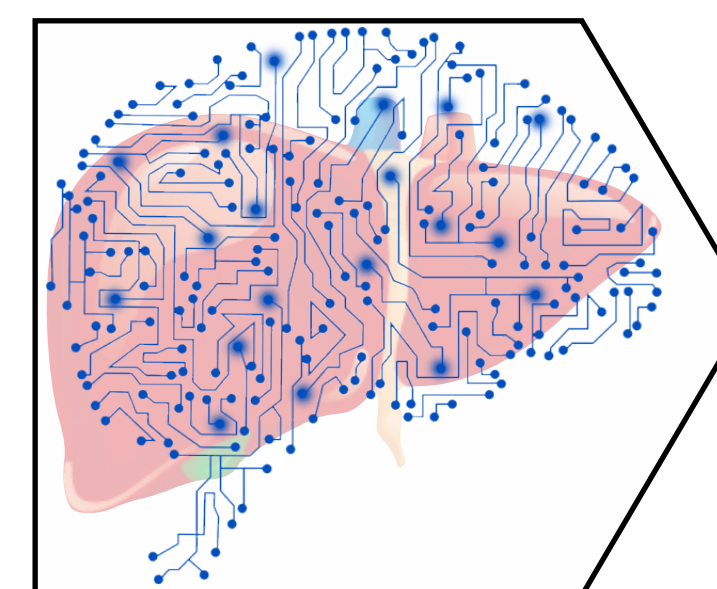
eTRANSafe

Started my first Postdoc in March 2018

Toxicity
Classification



For a given
compound I was
able to label it as
toxic or not toxic



Why liver fails ?

Somebody eats the liver



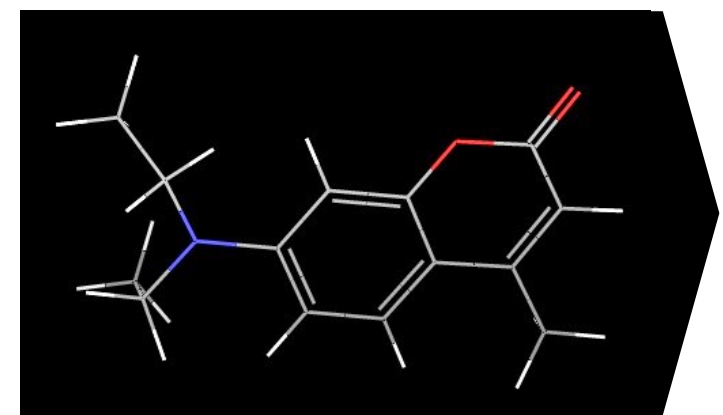
Chronic liver failure

- Hepatitis B
- Hepatitis C
- LT alcohol consumption
- Hemochromatosis
- Wilson's disease
- Rarely **drug induced** liver disease from methotrexate, amiodarone, nitrofurantoin and other

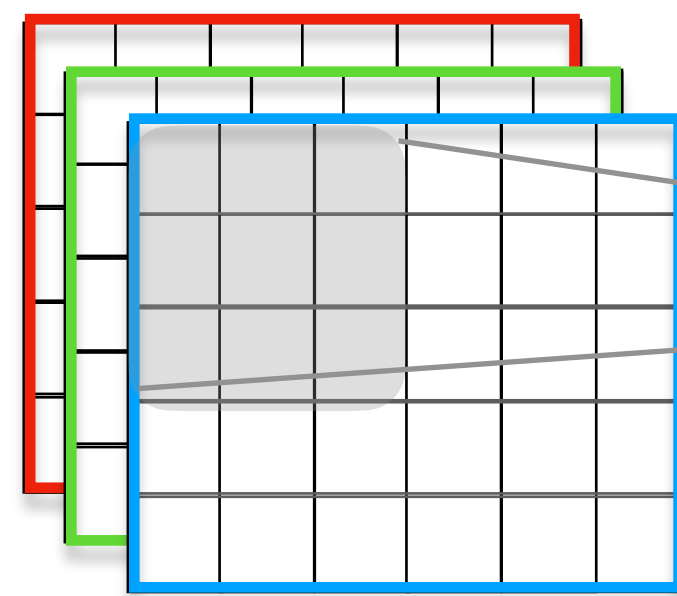
Acute liver failure

- **Drug induced**
- Hepatitis A
- Hepatitis B
- LT alcohol consumption
- Pregnancy
- Reye syndrom

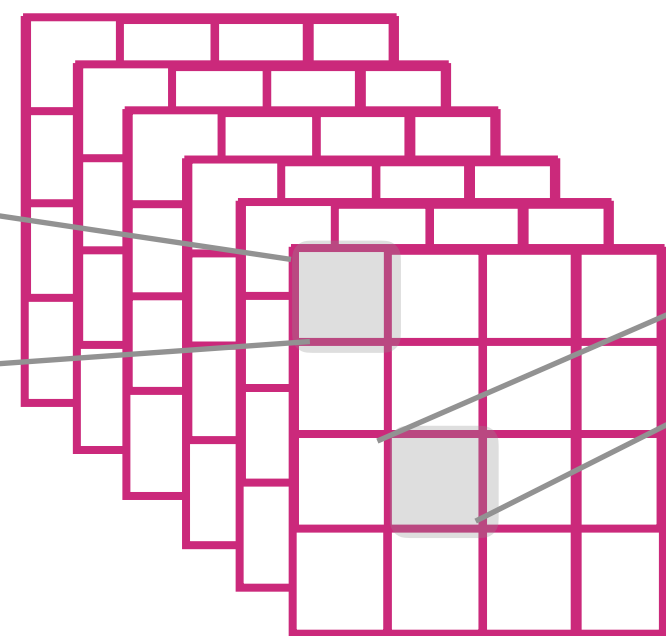
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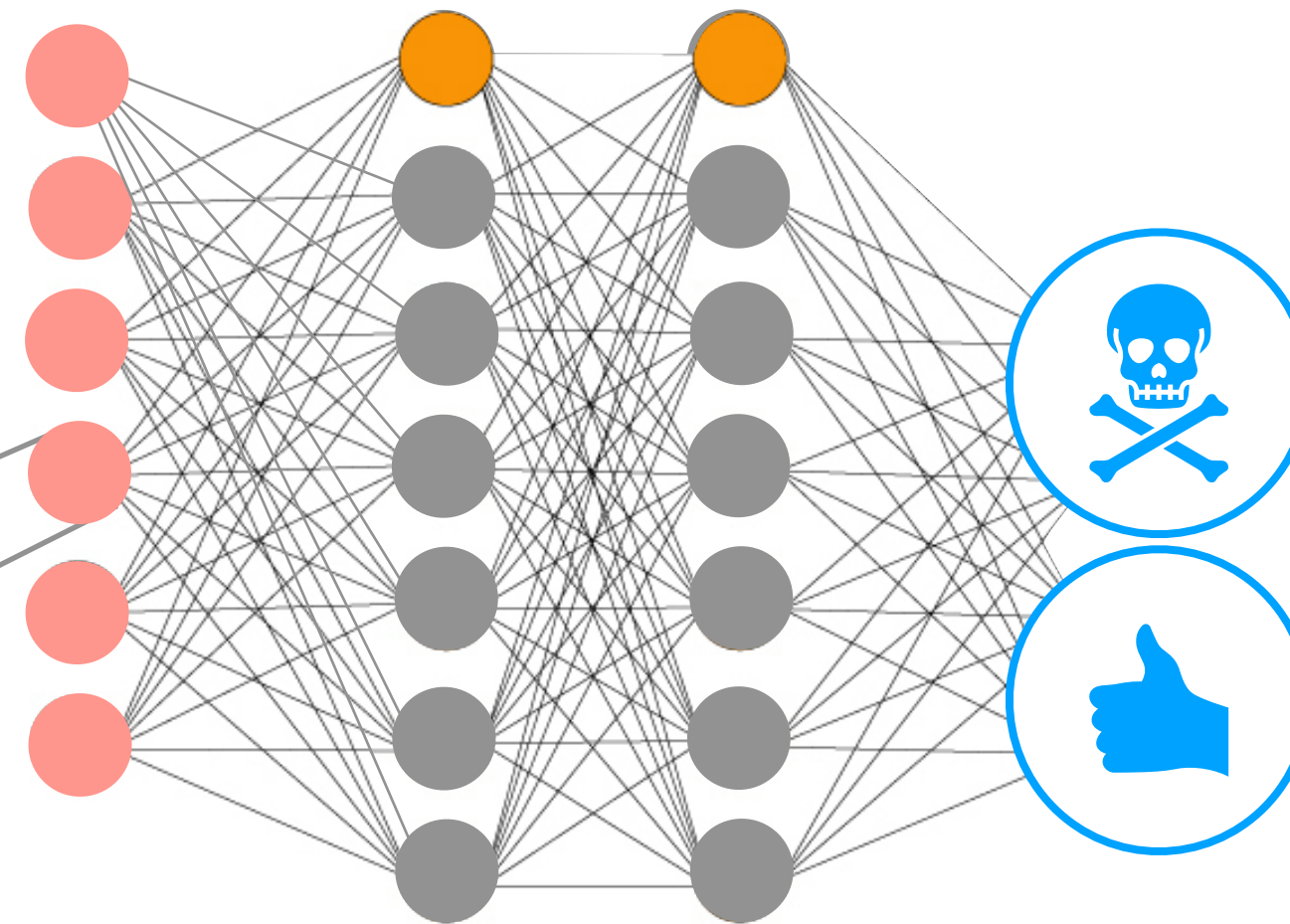
Input image



Convolution and max pooling layers



Fully connected and output layers



The Highlights

- Attending EU consortium meetings on drug induced toxicity
- 3 talks in international conferences
- 3 publications
- Travels

Image Based Liver Toxicity Prediction

Ece Asilar,* Jennifer Hemmerich, and Gerhard F. Ecker

 Cite This: *J. Chem. Inf. Model.* 2020, 60, 1111–1121

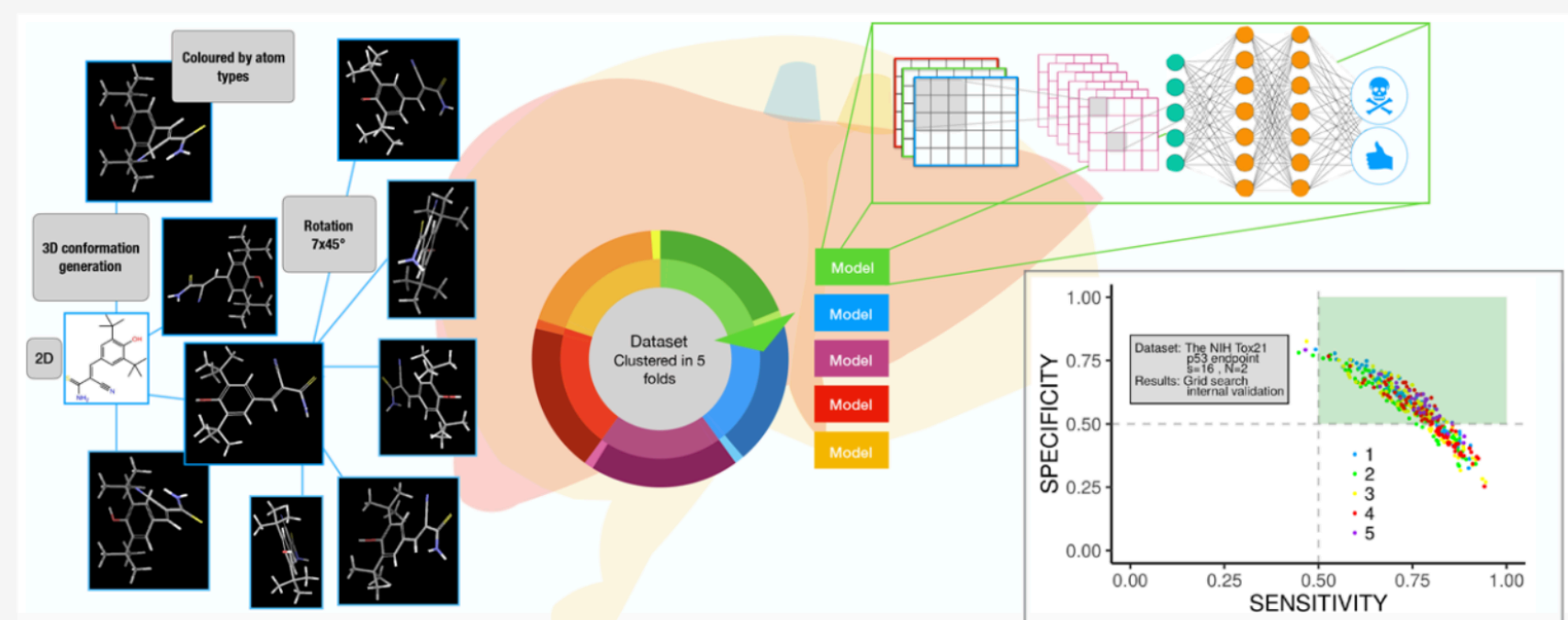
 Read Online

ACCESS |

 Metrics & More

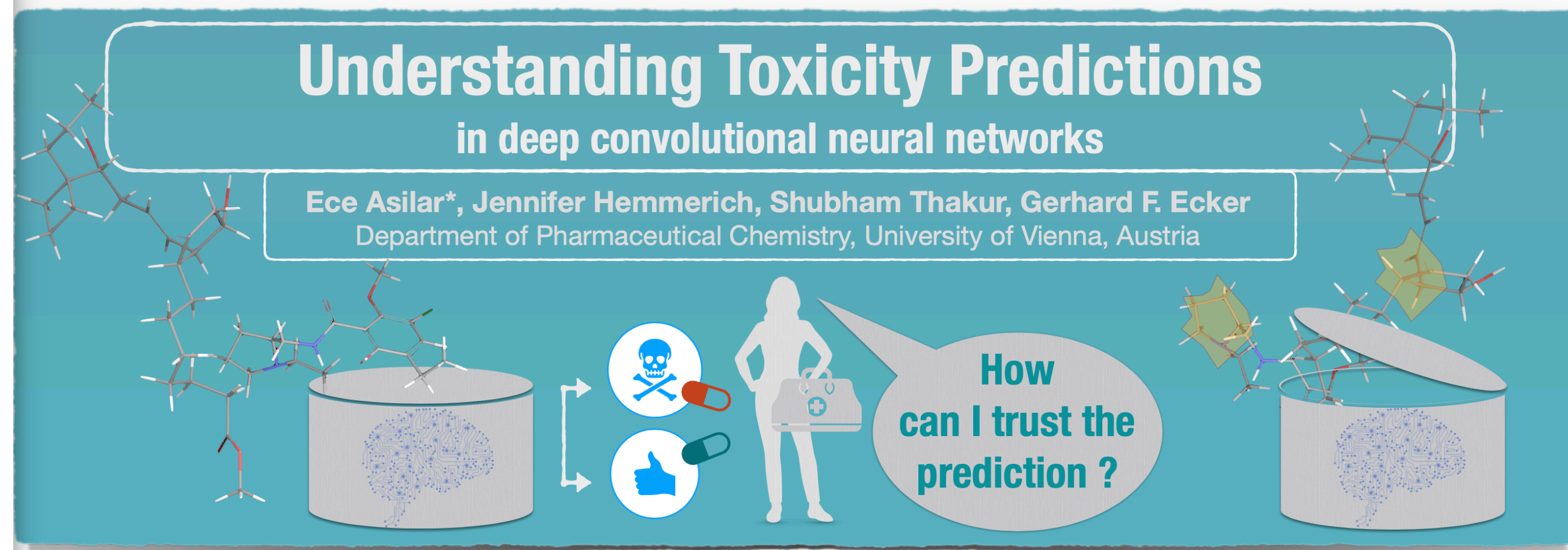
 Article Recommendations

 Supporting

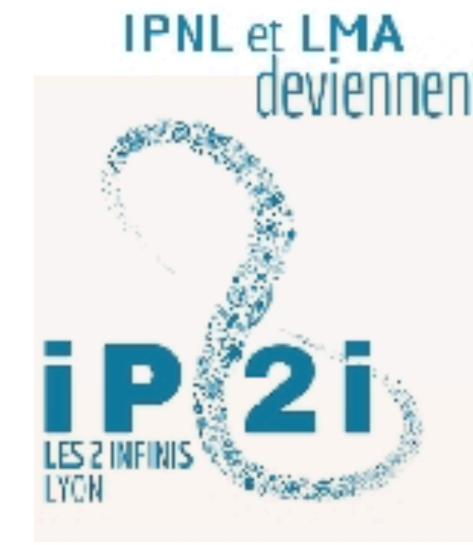
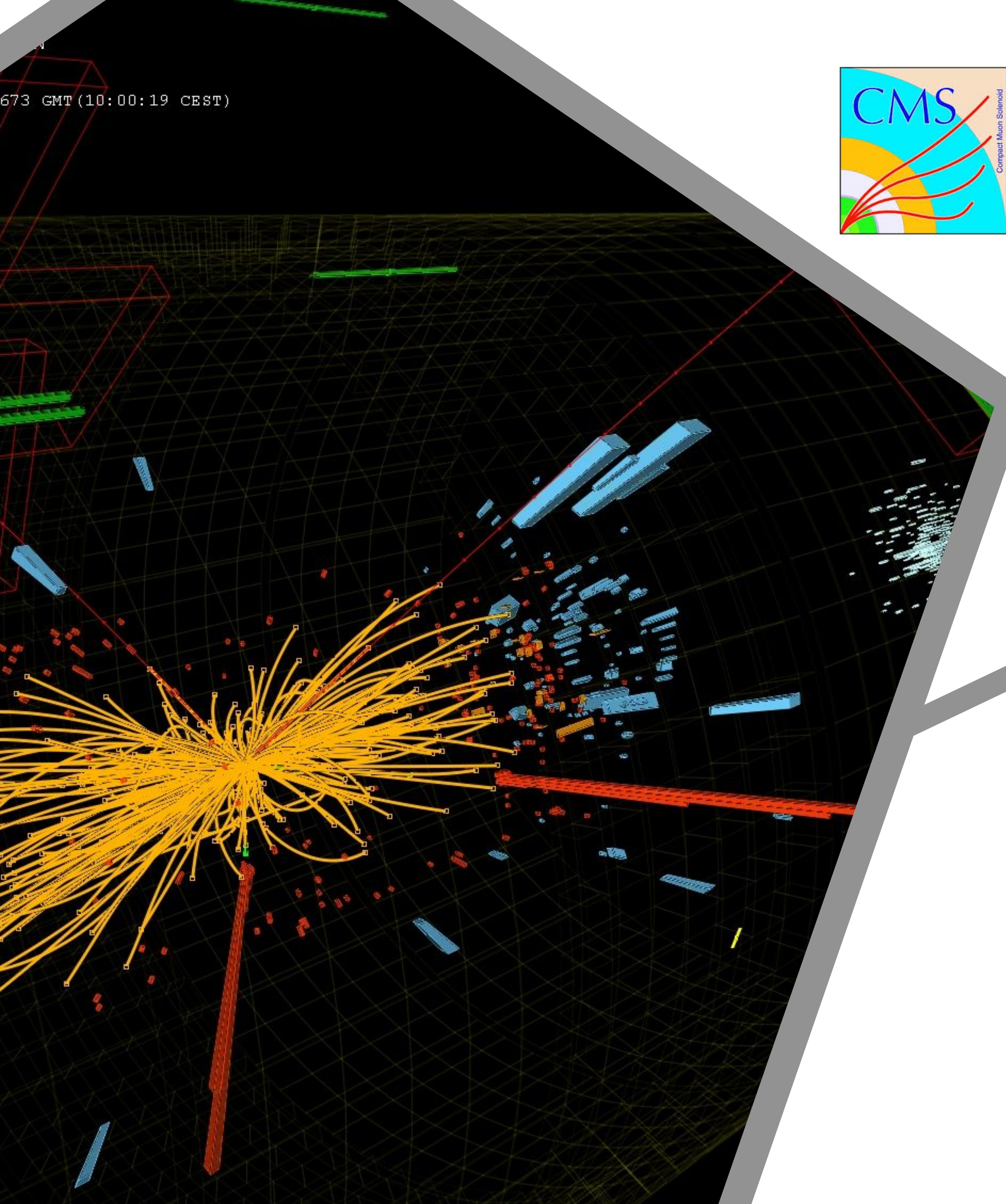


Understanding Toxicity Predictions in deep convolutional neural networks

Ece Asilar*, Jennifer Hemmerich, Shubham Thakur, Gerhard F. Ecker
Department of Pharmaceutical Chemistry, University of Vienna, Austria



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Started my first postdoc in Particle Physics
in September 2019 at IP2I France

Started my second postdoc in Particle Physics
in December 2021 at Hanyang University

Performing physics analysis
and hardware at the same time

Roles in CMS Experiment

Tau Physics Object Group

2020-2022 co-Convener of CMS Tau identification group
organising and chairing the meetings
guiding physicists on how to use deepTau identification in their analysis

2019-2020 Contact person for CMS Tau DQM developers.
almost completely renew the Tau offline DQM structure in CMSSW
the pull request was accepted by the Tau POG repository managers.

Detector work for HL-LHC upgrade

Since 2022 CMS RPC Trigger coordinator

- Understand CMS Trigger and Data acquisition system in terms of software and hardware.
- Organise meetings and lead the communications between:
CMS central Trigger groups and RPC backend developers.

DK connection:
Collaborating with
Janik Andrejkovic



Physics Analysis

- Leading the search for lepton flavour violation in the top quark sector in events with a muon and a tau for the first time in CMS Experiment.
- Changed the course of the analysis revolutionary:
 - Removed the two categories by implementing multi categorical classification using Deep Neural Networks (DNN) which enhanced sensitivity significantly.
- Presented the analysis in CMS Week Physics Plenary
- CMS-TOP-22-011: currently going to pre-approval, planned for publication later this year.
- One of the editors of the top mass review paper CMS-TOP-23-003.

DK connection:
I had to chance to
collaborate with A. Hoang
in writing

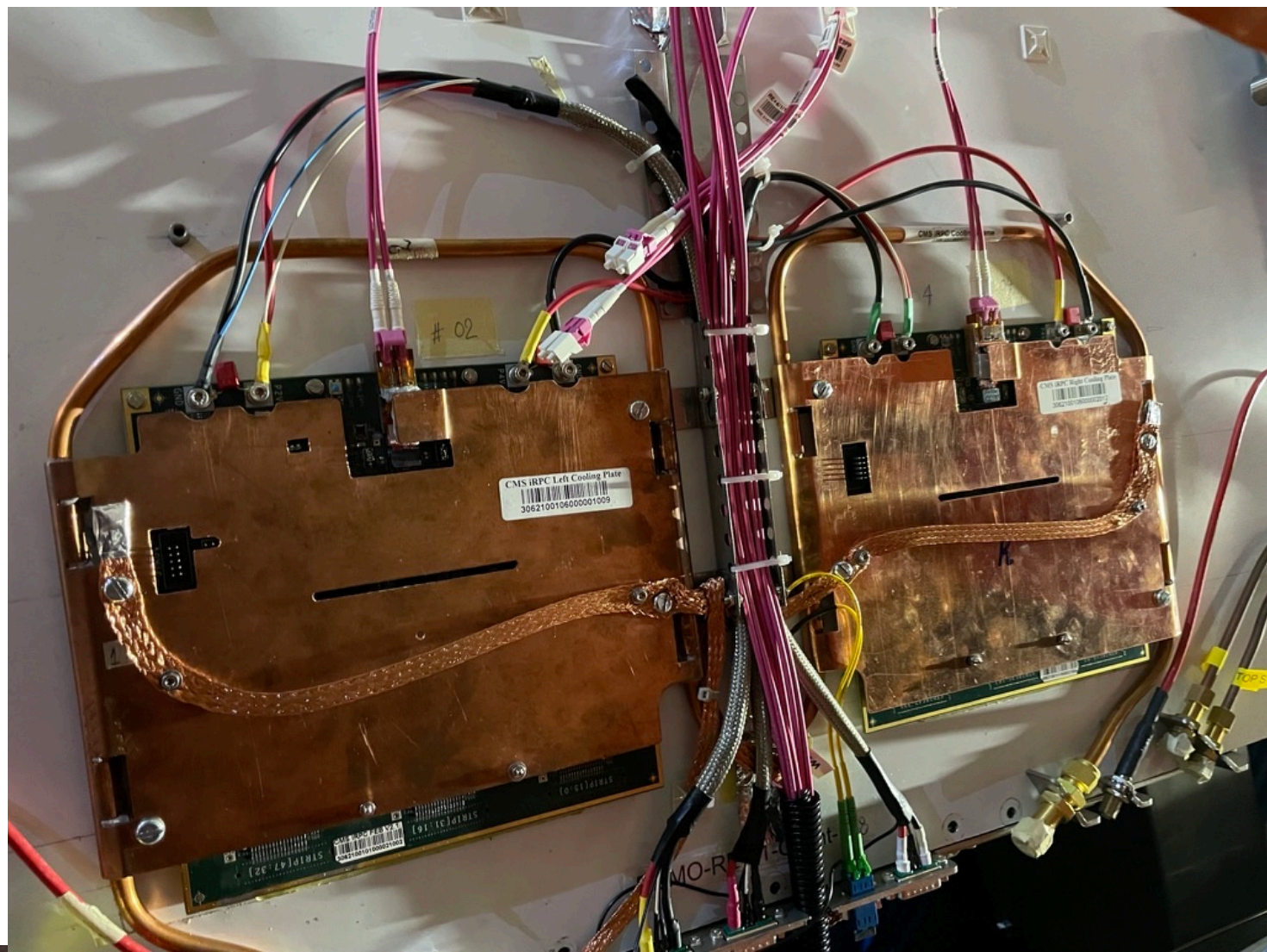


Detector Work

Contributing to the CMS trigger system by improving the performance of the CMS RPC system lead me to obtain CMS award.

- Responsible for the integration of the CMS improved RPC (iRPC) system to the CMS central DAQ.
- Leading test beams that took place in GIF++ facility using the muon beams from the SPS.
- Installation and commissioning of demonstrator chambers in the CMS cavern.
 - Fibre optic cables connectivity tests
 - Tests of remote firmware flashing for FPGA
 - Noise and temperature measurement with FC7 based local data acquisition.
- Presented the results in CMS Week Upgrade Plenary
- Introduce the Front End Board project at the electronic system review.





The Highlights

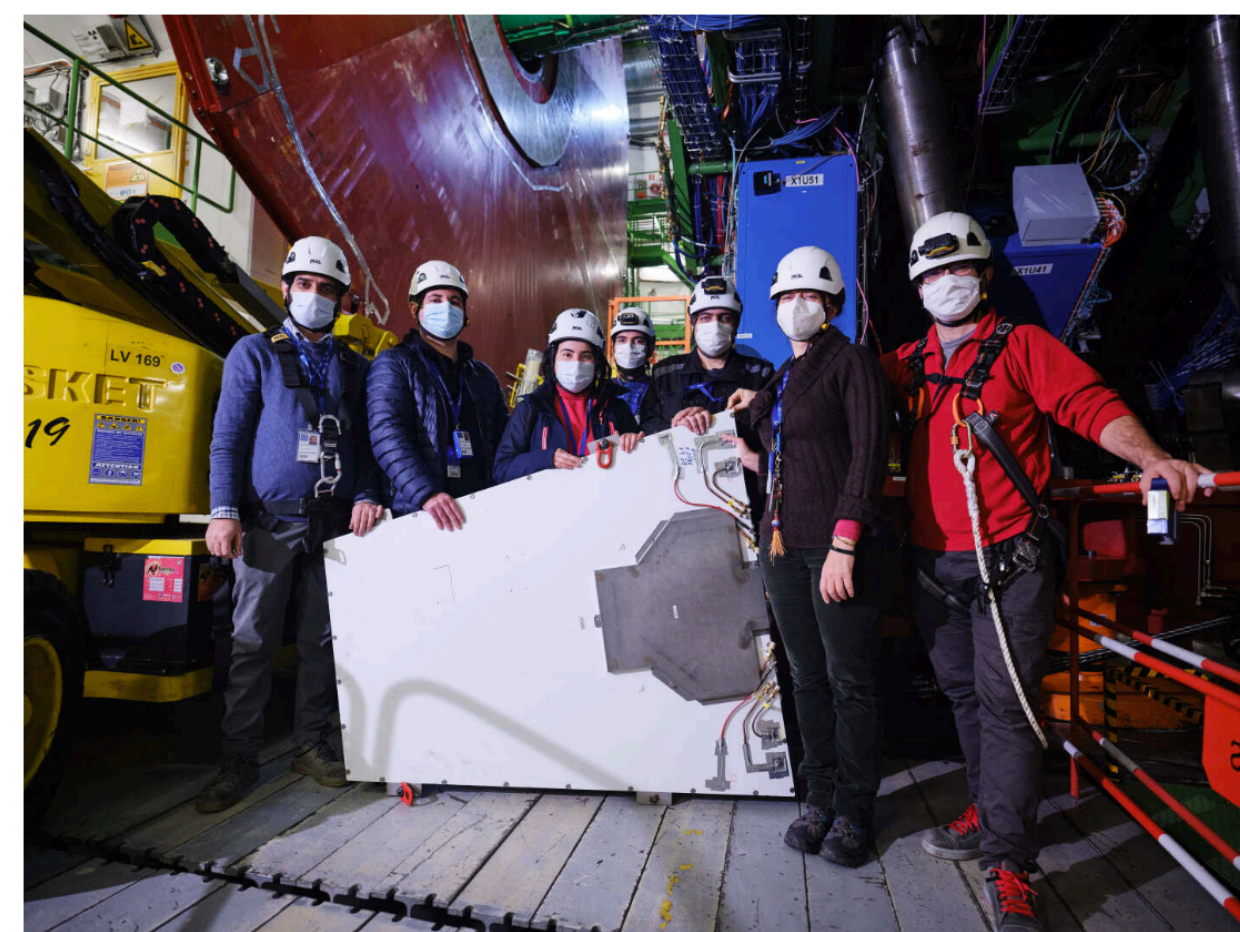
- Many talks within the Collaboraiton
- So far, 3 talks in international conferences, 3 proceedings
- Working at the experiment itself
- Management / coordination positions
- Women is Technology @ CERN , CMS Women forum, CMS Muon outreach coordination



Improved resistive-plate-chamber technology being installed in CMS in 2021.



Last December two iRPC demonstrator chambers were installed to get experiences with this new technology in the real CMS conditions with high magnetic field and massive background during Run 3. The final installation of both stations is expected by the end of 2023/24. Huge efforts are ongoing at CERN 904 lab & in Belgium, Brazil, Bulgaria, China, France, Georgia, Iran, Italy, Korea and Mexico to make the "iRPC upgrade project" a success.



RPC team showing a demonstrator chamber before installation.

Credits: CERN | Traczyk, Piotr

CMS Women for Science



Thank you

$\int dk$ Π Doktoratskolleg
Particles and Interactions

*For giving us the opportunity to go outside of
our bubbles*

*We were able to connect with the rich world of
particle physics through our DK colleagues...*