

Andrej Saibel

Carrer d'Estubeny 1, 46025 Valencia, Spain | +34 611 210 916 | Andrej.Saibel@cern.ch |

Academic Degrees

Feb 2017 – Aug 2021

Dr. rer. nat., Universität Hamburg, Hamburg, Germany (1.0, magna cum laude)

- Ph.D. thesis:
 - Phenomenology of $t\bar{t}H$ Production with Top Quark Running Mass and the Differential Cross-Section Measurement of $t\bar{t}+b$ -jets Production in the Dilepton Channel at $\sqrt{s} = 13$ TeV with the CMS Experiment

May 2014 – Jan 2017

Master of Science, Karlsruhe Institute of Technology, Karlsruhe, Germany (1.0, with distinction)

- Master's thesis:
 - Study of $t\bar{t}+b\bar{b}$ Modelling and Uncertainties of Monte Carlo Generators for the $t\bar{t}H(b\bar{b})$ -Analysis at the CMS Experiment

Sep 2009 – Apr 2014

Bachelor of Science, Karlsruhe Institute of Technology, Karlsruhe, Germany

- Bachelor's thesis:
 - Studies of the Optimization of Multivariate Methods for the Reconstruction of the $t\bar{t}H$ -Prozess

PROFESSIONAL EXPERIENCE

Feb 2022 – Now

Postdoctoral Researcher, Instituto de Física Corpuscular, Valencia, Spain

Feb 2017 – Aug 2021

Ph.D. Student, Universität Hamburg and Deutsches Elektronen-Synchrotron, Hamburg, Germany

Activities and Responsibilities

Oct 2018 – Mar 2020

Leadership of the Higgs Monte Carlo (MC) simulation group in the CMS collaboration

- Responsibility for all simulations involving Higgs bosons in CMS
- Group manpower: 12

Feb 2017 – Feb 2020

Leadership of the Herwig 7 MC generator group in the CMS collaboration

- Contact person between CMS and Herwig collaborations
- Implementation and maintenance of Herwig 7 in CMS software
- Group manpower: 3

Fields of Competence

- **Experimental Particle Physics**
 - Physics of the Higgs boson and the top quark
 - Measurements of total and differential cross-sections
 - Measurements of processes involving jets originating from bottom quarks

- **Monte Carlo Simulation**
 - Experience with all MC event generators used in particles physics
 - Including Powheg, MG5aMC@NLO, Sherpa, Herwig 7, Pythia 8
- **Statistical Data Analysis**
 - Maximum-likelihood parameter estimation
 - Machine learning
 - Boosted Decision Trees, Multilayer Perceptrons
 - Unfolding
 - Maximum-likelihood based, TUnfold
- **Phenomenology**
 - Calculation of differential cross-sections at the NLO precision
 - Phenomenology of Higgs boson production in association with top quarks
 - Running of the top quark mass
- **Software development**
 - Languages: C++, Python, Fortran
 - Object-oriented programming
 - Development of interfaces between MC event generators and production software

International Conference Contributions and Summer Schools

2021

14th International Workshop on Top Quark Physics

- Talk: "Associated top quark production: $pp \rightarrow t(\bar{t})+X$ where $X = cc, bb, j, jj, \dots$, in ATLAS and CMS"
- Poster: "Cross Sections for $t\bar{t}H$ production with the Top Quark $M_{S\bar{b}}$ Mass"

2018

11th International Workshop on Top Quark Physics, Bad Neuenahr

- Poster: "Search for $t\bar{t}H, H \rightarrow b\bar{b}$ decays using the full 2016 data sample"

50. Herbstschule für Hochenergiephysik Maria Laach

- Talk: "Differential $t\bar{t}+b\bar{b}$ Cross Section Measurement at 13 TeV in the Dileptonic Channel"

2017

11th MCnet School, Lund

Key Publications

Mar 2022

Full list of publications – <https://inspirehep.net/authors/1599022>

In total 212 publications in peer-reviewed journals, h-index 43

2021

Saibel A., "Phenomenology of $t\bar{t}H$ Production with Top Quark Running Mass and the Differential Cross-Section Measurement of $t\bar{t}+b$ -jets Production in the Dilepton Channel at $\sqrt{s} = 13$ TeV with the CMS Experiment", Ph.D. thesis, Hamburg U., Published in: DESY-THESIS-2021-013

CMS Collaboration, "Development and validation of HERWIG 7 tunes from CMS underlying-event measurements", Published in: Eur.Phys.J.C 81 (2021) 4

2019

CMS Collaboration, "Search for $t\bar{t}H$ production in the $H \rightarrow b\bar{b}$ decay channel with leptonic $t\bar{t}$ decays in proton-proton collisions at $\sqrt{s} = 13$ TeV", Published in: JHEP 03 (2019) 026
