

# CURRICULUM VITAE

## DR. RER. NAT. MARTIN BIES



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### PERSONAL DETAILS

Address:	Avenue Louise 216	Date of birth:	15/12/1987
	Apartment 292	Birthplace:	Merzig (DE)
	1050 Brussels (BE)	Nationality:	German
Email:	MBies87@gmail.com	Gender:	Male

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### SUMMARY

Education	<b>PhD in Physics</b> (Heidelberg university – defended on 01/02/2018)
Past research	<b>String theory – development of mathematical software</b> (via <b>GitHub</b> and including <b>machine learning</b> ) and <b>computation of massless spectra</b>
Teaching experience	Tutor for 8 lecture courses (since Oct. 2012) <b>Senior Tutor</b> in 2016 and 2018
Language skills	German – mother tongue <b>English – fluent (Imperial College International Diploma)</b> French – Basic knowledge
Scholarships	<b>Studienstiftung des deutschen Volkes</b> (Jan. 2010 – Feb. 2018) <b>FWA – Foundation Wiener-Anspach</b> (since Oct. 2018)

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### PROFESSIONAL EXPERIENCE

Since Oct. 2018	Postdoctoral Researcher Physique Théorique et Mathématique, Université Libre de Bruxelles
Feb. 2018 – Sept. 2018	Postdoctoral Researcher Institut für theoretische Physik, Ruprecht-Karls-Universität Heidelberg

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### EDUCATION

Mar. 2014 – Feb. 2018	PhD studies in physics (Heidelberg university) on the subject <i>Cohomologies of coherent sheaves and massless spectra in F-theory</i> Supervisor physics: Prof. Dr. Timo Weigand (Uni. Heidelberg) Supervisor mathematics: Prof. Dr. Mohamed Barakat (Uni. Siegen) Result: Magna cum laude (very good)
Sept. 2012 – Feb. 2014	Master studies in physics (Heidelberg university) on the subject <i>Cohomologies of holomorphic line bundles in smooth and compact normal toric varieties</i> Supervisor: Prof. Dr. Timo Weigand Result: 1.0
Oct. 2008 – Aug. 2012	Bachelor studies in physics (Heidelberg university) on the subject <i>Intersecting D6-brane models on <math>T^2 \times T^2 \times T^2/(\sigma \times \Omega)</math> and <math>T^2 \times T^2 \times T^2/(\mathbb{Z}_2 \times \mathbb{Z}_2 \times \sigma \times \Omega)</math> orientifolds</i> Supervisor: Prof. Dr. Timo Weigand Result: 1.1
Oct. 2010 – June 2011	Studies abroad at Imperial College (London, United Kingdom)

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## SOFTWARE DEVELOPMENT

As part of the *homalg\_project* of the mathematician *Mohamed Barakat* (*Siegen university*), I maintain the following *GAP*-packages on my *GitHub*-site <https://github.com/HereAround>:

- CAPCategoryOfProjectiveGradedModules
  - CAPPresentationCategory
  - PresentationsByProjectiveGradedModules
  - TruncationsOfPresentationsByProjectiveGradedModules
  - SheafCohomologyOnToricVarieties
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## SCIENTIFIC PUBLICATIONS

- *Cohomologies of coherent sheaves and massless spectra in F-theory* (arXiv-ID: 1802.08860)
  - *Algebraic Cycles and Local Anomalies in F-theory* (arXiv-ID: 1706.08528)  
Collaborators: Christoph Mayrhofer and Timo Weigand
  - *Gauge Backgrounds and Zero-Mode Counting in F-theory* (arXiv-ID: 1706.04616)  
Collaborators: Christoph Mayrhofer and Timo Weigand
  - *Chow groups, Deligne cohomology and massless matter in F-theory* (arXiv-ID: 1402.5144)  
Collaborators: Christoph Mayrhofer, Christian Pehle and Timo Weigand
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## CONFERENCES

Aug. 2018	CAP_days 2018 (Siegen, Germany)
May 2018	Kontaktseminar – Schwerpunkt Banken und Beratung (Bonn, Germany)
May 2018	Physiker im Beruf (Bad Honnef, Germany)
Mar. 2018	string_data 2018 (Munich, Germany)
Jul. 2017	String Pheno 2017 (Virginia, USA)
Dec. 2015	String Math (Sanya, China)
Sept. 2015	Third GAP Days (Trondheim, Norway)
Mar. 2015	Second GAP Days (Aachen, Germany)
Feb. 2015	Physics and Geometry of F-theory (Munich, Germany)
Dec. 2014	Homological Perturbation Theory (Galway, Ireland)
Aug. 2014	GAP Days (Aachen, Germany)
Feb. 2014	Geometry and Physics of String Compactifications (Heidelberg, Germany)

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## TEACHING EXPERIENCE

Apr. 2018 – Oct. 2018	Senior tutor	methods of mathematical physics 1
Oct. 2016 – Mar. 2017	Tutor	theoretical physics I
Apr. 2016 – Sept. 2016	Senior tutor	General relativity
Apr. 2015 – Sept. 2015	Tutor	theoretical physics IV
Oct. 2014 – Mar. 2015	Tutor	Quantum field theory
Oct. 2013 – Mar. 2014	Tutor	theoretical physics III
Apr. 2013 – Sept. 2013	Tutor	theoretical physics II
Oct. 2012 – Mar. 2013	Tutor	theoretical physics I

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**ENGAGEMENT AT *Studienstiftung des deutschen Volkes***

June 2018	Member of the admission board <i>Heidelberg</i>
Dec. 2017	Member of the admission board <i>Ellwangen III</i>
May 2017	Training for admission board members – successfully completed
Nov. 2016	Member of the admission board <i>Heidelberg</i>