

Fecha del CVA	30/11/2020
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Parte A. DATOS PERSONALES

Nombre y Apellidos	Mikael Chala		
DNI/NIE/Pasaporte		Edad	33
Núm. identificación del investigador	Researcher ID	AAB-4586-2019	
	Scopus Author ID	54790628800	
	* Código ORCID	0000-0002-8194-1050	

* Obligatorio

A.1. Situación profesional actual

Organismo	Universidad de Granada		
Dpto. / Centro			
Dirección	Campus de Fuentenueva, 18071, Granada		
Teléfono	(+34) 958 - 241727	Correo electrónico	mikael.chala@ugr.es
Categoría profesional	Ramón y Cajal	Fecha inicio	2020
Palabras clave	Física hp -- altas energías -- fenomenología		

A.2. Formación académica (título, institución, fecha)

Licenciatura/Grado/Doctorado	Universidad	Año
PhD in Theoretical Physics	Universidad de Granada	2014
MSc. in Advanced Techniques and Methods in Physics	Universidad de Granada	2011
Spanish "Licenciatura degree" in Physics	Universidad de Granada	2010

A.3. Indicadores generales de calidad de la producción científica

Parte B. RESUMEN LIBRE DEL CURRÍCULUM

I did my PhD in the University of Granada, finishing in 2014. During that period I worked on the collider phenomenology of beyond the Standard Model physics. After completing my PhD, I moved to DESY as postdoctoral fellow, where I started working on dark matter as well as on the gravitational wave signals of phase transitions. I resigned after two years to have a one-year interlude in the IFIC, after which I was awarded the Newton International Fellowship, which supports research projects at UK institutions. I was thereafter based at Durham University as research fellow of the Royal Society for two years. During this time, I also started working intensively on flavour physics.

In 2019 I joined the University of Granada as fellow Juan de la Cierva Incorporación, and in 2020 I obtained the Ramón y Cajal fellowship. My current research interests focus more on the quantum structure of effective field theories.

In total, I have coauthored **49 peer-reviewed articles**, as well as other reports. I have written the large majority of my papers without my thesis advisors (many with only other postdocs/students, including my five most cited), **two by myself**. In total, my work has received **nearly 3000 citations**, resulting in an **h-index of 27**. I have given talks at **more than 60 international conferences** and seminars all around Europe as well as United States and Asia, **more than 40 as invited speaker**. Moreover, I have co-organized four conferences. I have also made research stays at CERN, Zurich, and Prague, among others. I have also obtained **experience in applying and managing national and international funding**, being PI of several international projects, and I am member of the international collaborations LISA and ATLAS. At all stages of my career, I have also made intensive contributions to outreach.

C.5 Participación en la organización de congresos

- "BSM faces LHC run-2 realities"; Hamburg, 2016.
- "Interdisciplinary approach to QCD-like composite dark matter"; Trento, 2018.
- "Higgs effective field theory workshop 2020"; Granada, 2020.

C.6 Tareas de evaluación

- Referee for the journals PRL, JHEP, EPJC, PRD, PLB, IJMPA, MPLA and Universe.
- Referee for the funding agencies "South Africa's national research foundation" and "Laboratório de instrumentação e física experimental de partículas de Portugal".

C7 Tesis doctorales dirigidas

- Julian Alcaide; defense date: 22/07/2020.
- Maria Ramos; defense date: 06/2021.

C8 Premios

- Extraordinary prize by the University of Granada to the best PhD thesis in Science defended in 2013-2014.
- Individual performance bonus by DESY in recognition of the exceptionally good work done in 2015.
- Finalist of the XVIII edition of the international contest Science in action organized by CSIC, Lilly Foundation, ICMAT, RSEF, RSEQ, SEA, SEBBM, SGE and UNED in the category of "Physics and society", by the proposal: "A new way to look at electromagnetic waves".
- First prize in the V Outreach Contest organized by the Spanish CPAN in the category "Outreach articles", by the article: "Neutrino masses: where is our Neptune?".

Parte C. MÉRITOS MÁS RELEVANTES (ordenados por tipología)

C.1. Publicaciones

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores

- 1 Artículo científico.** Chala, Mikael; Kozow, Pawel; Ramos, Maria; Titov, Arsenii. 2020. Effective field theory for vector-like leptons Phys. Lett. B. 809, pp.135752-135752.
- 2 Artículo científico.** Castro, Nuno; Chala, Mikael; Peixoto, Ana; Ramos, Maria. 2020. Novel flavour-changing neutral currents in the top quark sector JHEP. 10, pp.038-038.
- 3 Artículo científico.** Chala, Mikael; Titov, Arsenii. 2020. One-loop matching in the SMEFT extended with a sterile neutrino JHEP. 05, pp.139-139.
- 4 Artículo científico.** Chala, Mikael; Titov, Arsenii. 2020. One-loop running of dimension-six Higgs-neutrino operators and implications of a large neutrino dipole moment JHEP. 09, pp.188-188.
- 5 Artículo científico.** Biek\otter, Anke; Chala, Mikael; Spannowsky, Michael. 2020. The effective field theory of low scale see-saw at colliders Eur. Phys. J. C. 80-8, pp.743-743.
- 6 Artículo científico.** Chala, Mikael; Santiago, Jose; Spannowsky, Michael. 2019. Constraining four-fermion operators using rare top decays JHEP. 04, pp.014-014.
- 7 Artículo científico.** Caprini, Chiara; others. 2019. Detecting gravitational waves from cosmological phase transitions with LISA: an update
- 8 Artículo científico.** Abada, A.; others. 2019. FCC Physics Opportunities Eur. Phys. J. C79-6, pp.474-474.
- 9 Artículo científico.** Abada, A.; others. 2019. FCC-ee: The Lepton Collider Eur. Phys. J. ST. 228-2, pp.261-623.
- 10 Artículo científico.** Abada, A.; others. 2019. FCC-hh: The Hadron Collider Eur. Phys. J. ST. 228-4, pp.755-1107.
- 11 Artículo científico.** Chala, Mikael; Ramos, Maria; Spannowsky, Michael. 2019. Gravitational wave and collider probes of a triplet Higgs sector with a low cutoff Eur. Phys. J. C79-2, pp.156-156.

- 12 **Artículo científico.** Abada, A.; others. 2019. HE-LHC: The High-Energy Large Hadron Collider Volume Eur. Phys. J. ST. 228-5, pp.1109-1382.
- 13 **Artículo científico.** Butterworth, Jonathan M.; Chala, Mikael; Englert, Christoph; Spannowsky, Michael; Titov, Arsenii. 2019. Higgs phenomenology as a probe of sterile neutrinos Phys. Rev.D100-11, pp.115019-115019.
- 14 **Artículo científico.** Chala, Mikael; Gröber, Ramona; Spannowsky, Michael. 2019. Interplay between collider searches for vector-like quarks and dark matter searches in composite Higgs models Int. J. Mod. Phys.A34-13n14, pp.1940011-1940011.
- 15 **Artículo científico.** Chala, Mikael; Khoze, Valentin V.; Spannowsky, Michael; Waite, Philip. 2019. Mapping the shape of the scalar potential with gravitational waves Int. J. Mod. Phys.A34-33, pp.1950223-1950223.
- 16 **Artículo científico.** Blance, Andrew; Chala, Mikael; Ramos, Maria; Spannowsky, Michael. 2019. Novel $\mathbb{B}\mathbb{S}$ -decay signatures of light scalars at high energy facilities Phys. Rev.D100-11, pp.115015-115015.
- 17 **Artículo científico.** Alcaide, Julien; Banerjee, Shankha; Chala, Mikael; Titov, Arsenii. 2019. Probes of the Standard Model effective field theory extended with a right-handed neutrino JHEP. 08, pp.031-031.
- 18 **Artículo científico.** Chala, Mikael; Egede, Ulrik; Spannowsky, Michael. 2019. Searching new physics in rare $\mathbb{B}\mathbb{S}$ -meson decays into multiple muons Eur. Phys. J.C79-5, pp.431-431.
- 19 **Artículo científico.** Chala, Mikael; Lenz, Alexander; Rusov, Aleksey V.; Scholtz, Jakub. 2019. $\{\Delta A_{CP}\}$ within the Standard Model and beyond JHEP. 07, pp.161-161.
- 20 **Artículo científico.** Chala, Mikael; Spannowsky, Michael. 2018. Behavior of composite resonances breaking lepton flavor universality Phys. Rev.D98-3, pp.035010-035010.
- 21 **Artículo científico.** Alcaide, Julien; Chala, Mikael; Santamaria, Arcadi. 2018. LHC signals of radiatively-induced neutrino masses and implications for the Zee–Babu model Phys. Lett.B779, pp.107-116.
- 22 **Artículo científico.** Chala, Mikael; Gröber, Ramona; Spannowsky, Michael. 2018. Searches for vector-like quarks at future colliders and implications for composite Higgs models with dark matter JHEP. 03, pp.040-040.
- 23 **Artículo científico.** Chala, Mikael; Krause, Claudius; Nardini, Germano. 2018. Signals of the electroweak phase transition at colliders and gravitational wave observatories JHEP. 07, pp.062-062.
- 24 **Artículo científico.** Banerjee, Shankha; Chala, Mikael; Spannowsky, Michael. 2018. Top quark FCNCs in extended Higgs sectors Eur. Phys. J.C78-8, pp.683-683.
- 25 **Artículo científico.** Chala, Mikael; Delgado, Antonio; Nardini, Germano; Quiros, Mariano. 2017. A light sneutrino rescues the light stop JHEP. 04, pp.097-097.
- 26 **Artículo científico.** Chala, Mikael. 2017. Direct bounds on heavy top-like quarks with standard and exotic decays Phys. Rev.D96-1, pp.015028-015028.
- 27 **Artículo científico.** Ballesteros, Guillermo; Carmona, Adrian; Chala, Mikael. 2017. Exceptional Composite Dark Matter Eur. Phys. J.C77-7, pp.468-468.
- 28 **Artículo científico.** Chala, Mikael; Durieux, Gauthier; Grojean, Christophe; de Lima, Leonardo; Matsedonskyi, Oleksii. 2017. Minimally extended SILH JHEP. 06, pp.088-088.
- 29 **Artículo científico.** Arina, Chiara; Chala, Mikael; Martin-Lozano, Victor; Nardini, Germano. 2016. Confronting SUSY models with LHC data via electroweakino production JHEP. 12, pp.149-149.
- 30 **Artículo científico.** Chala, Mikael; Grojean, Christophe; Riembau, Marc; Vantalon, Thibaud. 2016. Deciphering the CP nature of the 750 GeV resonance Phys. Lett.B760, pp.220-227.
- 31 **Artículo científico.** Chala, Mikael; Duerr, Michael; Kahlhoefer, Felix; Schmidt-Hoberg, Kai. 2016. Tricking Landau–Yang: How to obtain the diphoton excess from a vector resonance Phys. Lett.B755, pp.145-149.
- 32 **Artículo científico.** Chala, Mikael; Nardini, Germano; Sobolev, Ivan. 2016. Unified explanation for dark matter and electroweak baryogenesis with direct detection and gravitational wave signatures Phys. Rev.D94-5, pp.055006-055006.

- 33 **Artículo científico.** del Aguila, Francisco; Chala, Mikael; Santiago, Jose; Yamamoto, Yasuhiro. 2015. Collider limits on leptophilic interactions JHEP. 03, pp.059-059.
- 34 **Artículo científico.** Carmona, Adrian; Chala, Mikael. 2015. Composite Dark Sectors JHEP. 06, pp.105-105.
- 35 **Artículo científico.** Chala, Mikael; Kahlhoefer, Felix; McCullough, Matthew; Nardini, Germano; Schmidt-Hoberg, Kai. 2015. Constraining Dark Sectors with Monojets and Dijets JHEP. 07, pp.089-089.
- 36 **Artículo científico.** de Blas, Jorge; Chala, Mikael; Perez-Victoria, Manuel; Santiago, Jose. 2015. Observable Effects of General New Scalar Particles JHEP. 04, pp.078-078.
- 37 **Artículo científico.** de Blas, Jorge; Chala, Mikael; Santiago, Jose. 2015. Renormalization Group Constraints on New Top Interactions from Electroweak Precision Data JHEP. 09, pp.189-189.
- 38 **Artículo científico.** Chala, Mikael; Juknevich, José; Perez, Gilad; Santiago, José. 2015. The Elusive Gluon JHEP. 01, pp.092-092.
- 39 **Artículo científico.** Altheimer, A.; others. 2014. Boosted Objects and Jet Substructure at the LHC. Report of BOOST2012, held at IFIC Valencia, 23rd-27th of July 2012 Eur. Phys. J.C74-3, pp.2792-2792.
- 40 **Artículo científico.** Carmona, Adrian; Chala, Mikael; Falkowski, Adam; Khatibi, Sara; Mohammadi Najafabadi, Mojtaba; Perez, Gilad; Santiago, Jose. 2014. From Tevatron's top and lepton-based asymmetries to the LHC JHEP. 07, pp.005-005.
- 41 **Artículo científico.** del Águila, Francisco; Chala, Mikael. 2014. LHC bounds on Lepton Number Violation mediated by doubly and singly-charged scalars JHEP. 03, pp.027-027.
- 42 **Artículo científico.** Chala, Mikael. 2013. $\$h \rightarrow \gamma\gamma\$$ excess and Dark Matter from Composite Higgs Models JHEP. 01, pp.122-122.
- 43 **Artículo científico.** del Aguila, Francisco; Chala, Mikael; Santamaria, Arcadi; Wudka, Jose. 2013. Discriminating between lepton number violating scalars using events with four and three charged leptons at the LHC Phys. Lett.B725, pp.310-315.
- 44 **Artículo científico.** de Blas, Jorge; Chala, Mikael; Santiago, Jose. 2013. Global Constraints on Lepton-Quark Contact Interactions Phys. Rev.D88, pp.095011-095011.
- 45 **Artículo científico.** Chala, Mikael; Santiago, Jose. 2013. $Hbb\bar{b}$ production in composite Higgs models Phys. Rev.D88-3, pp.035010-035010.
- 46 **Artículo científico.** Chala, Mikael; Wudka, Jose. 2013. Lepton Number Violation and Scalar Searches at the LHC Acta Phys. Polon. B. 44-11, pp.2139-2148.
- 47 **Artículo científico.** Atre, Anupama; Chala, Mikael; Santiago, Jose. 2013. Searches for New Vector Like Quarks: Higgs Channels JHEP. 05, pp.099-099.
- 48 **Artículo científico.** Carmona, Adrian; Chala, Mikael; Santiago, Jose. 2012. New Higgs Production Mechanism in Composite Higgs Models JHEP. 07, pp.049-049.
- 49 **Artículo científico.** Barcelo, Roberto; Carmona, Adrian; Chala, Mikael; Masip, Manuel; Santiago, Jose. 2012. Single Vectorlike Quark Production at the LHC Nucl. Phys.B857, pp.172-184.

C.2. Proyectos

- 1 Precise and flavour computations in the standard model and beyond. Spanish ministry of science. Newton international fellowships alumni. Roberto Pittau. 2020-2022. 142.780 €.
- 2 Radiative corrections in the standard model effective field theory and implications at colliders. Royal Society. Newton International Fellowships Alumni. Mikael Chala. 2020-2022. 6.000 €.
- 3 Collider and astrophysical signals of non- minimal composite Higgs models with dark matter. Royal Society. Newton international fellowships. Mikael Chala. 2017-2019. 100.000 €.

C.3. Contratos

C.4. Patentes