MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE Sebastian Grinstein

CV date	14/04/2022

Part A. PERSONAL INFORMATION

First name	Sebastian		
Family name	Grinstein		
Gender	Male	Birth date	10/06/1972
NIE number	X8752352R		
Passport number	BD5118983	Nationality	Hungarian
e-mail	sgrinstein@ifae.es	https://www.icrea.cat/Web/ScientificStaff/sebastian-grinstein-461	
Open Researcher & Contributor ID (ORCID) (*)	orcid.org/0000-0002-6460-8694		

A.1. Current position

Position	ICREA Research Professor		
Initial date	15/10/2012		
Institution	Instituto de Física de Altas Energías (IFAE)		
Department/Center	IFAE Experimental Division		
Country	Spain	Teleph. number	+34 931702701
Key words	High energy physics, radiation detection		

A.2. Previous positions (research activity interuptions, art. 14.2.b))

Position	Institution	Dates
ICREA Research Professor	Instituto de Física de Altas Energías	15/10/2012-now
Professor Vinculat	Univeristat Autonoma de Barcelona	01/09/2008-now
ICREA Researcher	Instituto de Física de Altas Energías	01/09/2008-15/10/2012
Research Fellow	Harvard University	2006-2008
Postdoctoral Fellow	Harvard University	2003-2006
Doctoral Student	Universidad de Buenos Aires (UBA)	1998-2003
STINT Fellow (Sweden)	Royal Institute of Technology (KTH)	1997-1998

A.3. Education

Degree	University/Country	Year
PhD	Universidad de Buenos Aires/Argentina	2003
M.Sc. (*Licentiate*)	Universidad de Buenos Aires/Argentina	1997

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

I completed my M.Sc. at the University of Buenos Aires in 1997 working on the measurement of the production cross section of direct photons at the D0 experiment (Fermilab, USA). Afterwards, I worked in Sweden as a member of the Astroparticle Group of the Royal Institute of Technology (KTH) studying cosmic rays. I did my PhD (2003, University of Buenos Aires) measuring the properties of quarks and gluons in high energy collisions at D0. In 2003 I became a postdoctoral Fellow at Harvard University where I worked mainly at the CDF experiment (Fermilab) on top-quark physics and detector operations. In 2008 I joined the IFAE (Institut de Física d'Altes Energies) ATLAS experiment group as an ICREA

Researcher. I am currently leading the ATLAS Detector upgrade effort at IFAE. In 2012 I became an ICREA Research Professor.

My research has been focused on high-energy experimental particle physics: understanding which are the fundamental constituents of nature and how they interact. At the Fermilab Tevatron accelerator I have performed studies of QCD and the properties of the heaviest quark, the top quark. At the LHC accelerator at CERN I conducted searches for new physics in the top sector. I have always been drawn to instrumentation R&D. Since 2010 I have been leading various coordinated projects to develop new semiconductor detectors. As a result of this project, 3D pixel silicon sensors designed and produced at Barcelona are included in the innermost detector layer of ATLAS and in the tracking system of the ATLAS Forward Proton detector. Following this success, a new generation of ultra-radiation hard 3D sensors has been developed and is to be installed in ATLAS as part of the High-Luminosity LHC (HL-LHC) upgrade. In parallel, my group has been working on silicon detectors for timing. These detectors are expected to mitigate the effect of pile-up in the HL-LHC era. Again, we are positioned to make a substantial contribution to the recently approved ATLAS High Granularity Timing Detector. I also co-led a project to produce real time breast biopsy machines based on CdTe sensors and I am leading a second project exploring the performance of silicon detectors for neuromonitoring applications.

I have authored more than 1400 refereed publications through my career, as a member of the WiZard/CAPRICE, DZero, CDF and ATLAS collaborations. I am also the author of more than 60 internal notes in the DZero, CDF and ATLAS experiments. The h-index of my research production is 115. I have directed, or co-directed 9 PhD theses (detailed below) and 5 Master theses.

Directed or co-directed PhD theses:

- T. Wu, “Design and Characterization of a MAPS for the CEPC Vertex Detector”, PhD thesis co-director, Central China Normal University (CCNU, 2021 and UAB, 2022).
- M. Manna, “Development of 3D sensors for the ATLAS HL-LHC pixel upgrade ”, PhD co-director, Universitat Autonoma de Barcelona, 2021.
- Fabian Förster, “Novel CMOS Devices for High Energy Physics and Medical Applications”, PhD thesis co-director, Universitat Autonoma de Barcelona, 2020.
- David Vazquez Furelos, “3D Pixel Sensors for the High Luminosity LHC ATLAS Detector Upgrade”, PhD thesis director. Universitat Autonoma de Barcelona, 2019.
- Emanuele Cavallaro, “Novel Silicon Detector Technologies for the HL-LHC ATLAS Upgrade”, PhD thesis director. Universitat Autonoma de Barcelona, 2018.
- Ivan Lopez Paz, “The one-armed ATLAS Forward Proton Detector”, PhD thesis co-director. Universitat Autonoma de Barcelona, 2018.
- Shota Tsiskaridze, “Search for flavor-changing neutral current top quark decays $t \rightarrow Hq$, with $H \rightarrow bb$, in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector”, thesis co-director. Universitat Autonoma de Barcelona, 2016.
- Estel Perez, “First measurement of the Z+jets production cross section with the ATLAS experiment at the LHC”. PhD thesis co-director. Universitat Autonoma de Barcelona, 2011.
- Carolina Deluca, “Measurement of the Inclusive Isolated Prompt Photon Production Cross Section at the Tevatron”. PhD thesis co-director. Universitat Autonoma de Barcelona, 2009.

I am currently directing three PhD students and one M.Sc. student working on HEP instrumentation. I also teach an instrumentation course in the “Postgraduate Program in High Energy Physics, Astrophysics & Cosmology” Master at the Universitat Autonoma de Barcelona.

Part C. RELEVANT MERITS

C.1. Publications

As mentioned above, I have authored more than 1400 refereed publications through my career. Here I list 10 selected publications from the last 5 years.

- T. Wu et al., “The TaichuPix1: a monolithic active pixel sensor with fast in-pixel readout electronics for the CEPC vertex detector”, JINST, 16, P09020 (2021).
- S. Terzo et al., “Novel 3D pixel sensors for the upgrade of the ATLAS Inner Tracker”, Front. Phys. 9 2021 page 2.
- M. Manna, et al., “First characterisation of 3D pixel detectors irradiated at extreme fluences”, NIM A Volume 979, 1 November 2020, 164458.
- M.Reichmann, et al., “New test beam results of 3D and pad detectors constructed with poly-crystalline CVD diamond”, NIM A Volume 958, 1 April 2020, 162675.
- S. Terzo, et al., “Characterisation of AMS H35 HV-CMOS monolithic active pixel sensor prototypes for HEP applications”, JINST 14, P02016 (2019).
- S. Terzo, et al., “Performance of Irradiated RD53A 3D Pixel Sensors”, JINST 14 no. 06, P06005 (2019).
- J. Lange, et al., “Radiation hardness of small-pitch 3D pixel sensors up to a fluence of 3e16 neq/cm2”, JINST 13, P09009, 2018.
- S. Terzo, et al., “Characterization of novel prototypes of monolithic HV-CMOS pixel detectors for high energy physics experiments”, JINST, 12, C06009 (2017).
- J. Lange, et al., “Gain and time resolution of 45 μm thin Low Gain Avalanche Detectors before and after irradiation up to 1e15 neq/cm2”, JINST 12, P05003 (2017).
- S. Grinstein, et al., 'Module production of the one-arm AFP 3D pixel tracker', Journal Of Instrumentation (JINST) 12, C01086 (2017).

C.2. Congress

This is a sub-set of the invited instrumentation talks at congresses on the last 5 years.

- S. Grinstein, “A High Granularity Timing Detector for the Phase-2 ATLAS Upgrade”, The 29th International Workshop on Vertex Detectors (Vertex 2020) Oct 5-7, 2020.
- S. Grinstein, "A High Granularity Timing Detector for the Phase-2 Upgrade of the ATLAS Calorimeter", PSD11, Milton Keynes, UK, 3-8 September 2017.
- S. Grinstein, "Pixel Sensor Technologies for the CEPC", International Workshop on High Energy Circular Electron Positron Collider, Beijing, China, 6-8 November 2017.
- S. Grinstein, "Experience with the AFP 3D Silicon Pixel Tracker", 8th International Workshop on Semiconductor Pixel Detectors for Particles and Imaging (PIXEL 2016), Sestri-Levante, Italy, 5-9 September 2016.
- S. Grinstein, “3D Pixel Detectors at ATLAS’’, VERTEX 2014. Macha Lake. Czech Republic. September 2014.

C.3. Research projects

Below I list the projects of which I am, or have been, involved at the coordination level:

- H2020-INFRAINNOV-2020-2 (GA no. 101004761), “Advancement and Innovation for Detectors at Accelerators (AIDAinnova)”, Funding: 98750EUR, **PI (for IFAE) and WP coordinator: S. Grinstein**. Dates: 2021-2025, EU – Horizon 2020.
- RTI2018-094906-B-C21, "Detector productions for the HL-LHC ATLAS upgrade", funding: 1246300EUR. Coordinated project with IMB-CNM. **Co-PI: S. Grinstein.** Dates: 2019-2021. MICINN (Spain).

- IGNITE (BIST) 2019 Award for "BIOSPAD", awarded in January 2020 to IFAE, ICFO and IMB-CNM. PIs: **S. Grinstein** (IFAE), T Durduran (ICFO) and S. Hidalgo (IMB-CNM). Funding: 50000EUR.
- IGNITE (BIST) 2018, for "BIOSPAD", awarded in March 2019 to IFAE and ICFO. Principal investigators: **S. Grinstein** (IFAE) and T Durduran (ICFO). Funding: 20000EUR.
- FPA2015-69260-C3-2-R, "Participation of IFAE in the LHC ATLAS experiment": detector upgrade", Funding: 544.500EUR. Coordinated project with IMB-CNM. **PI: S. Grinstein**. Dates: 2016-2018. MINECO (Spain).
- COMRDI15-1-0022, "Biopsia 3D per tomosintesi (RIS3CAT)", Funding: 271.289EUR. Coordinated project. **PIs: M. Chmeissani and S. Grinstein**. Dates: 2016-2019. Generalitat de Catalunya – ACCIO.
- SEV-2016-0588, "Severo Ochoa excellence program", guarantor. Funding: 4M EUR. Dates: 2017-2021.
- H2020-INFRAIA-2014-2015 (GA no. 654168), "Advanced European Infrastructures for Detectors at Accelerators, AIDA2020", Funding: 55.000EUR+6000EUR. **PI (for IFAE) and WP coordinator: S. Grinstein**. Dates: 2015-2019 (extended). EU – Horizon 2020.
- FPA2013-48308-C2-1-P, "DETECTORES DE PIXELS ACTUALES Y FUTUROS PARA EL EXPERIMENTO ATLAS", Funding: 181.500EUR (coordinated project). **PI: S. Grinstein**. Dates: 2014-2015. MINECO.
- AGAUR SGR 2014, "Particle Detectors and Instrumentation group at IFAE", Funding: 43.200EUR, **PI: S. Grinstein**. Dates: 2014-2016. AGAUR.
- FPA2010-22060-C02, "Desarrollo y construccion de detectores pixels para las mejoras IBL y sLHC del experimento ATLAS". Funding: 347.149EUR. **PI: S. Grinstein**.

C.4. Contracts, technological or transfer merits

I am one of the four co-founders of BARETEK Barcelona Detector Technologies S.L., a spin-off company of IFAE, created in 2020. The company provides micro-electronics packaging and encapsulation solutions to research institutes and the private sector.

C.5 Leadership positions and Other activities

IFAE/BIST activities:
- Member of the IFAE Advisory Board (2019 – now)
- Guarantor ("Garante") for the IFAE Severo-Ochoa 2016 excellence award
- Member of the BIST Multidisciplinary Research working group

Most recent ATLAS positions:
- HGTD Deputy Project Leader (since April 2021)
- HGTD Sensor co-convener (2020 – now)
- HGTD Module Assembly co-convener (2018 – 2020)
- Project Management Office sub-committee member for the Muon System (2021 – now)
- Member of the ITk Pixel coordinator team (2017 – 2020)
- ITk Pixel sensor group co-convener (2016 – 2019)
- Member of the institute boards for ATLAS ITk, ATLAS HGTD and RD50 (on-going)

CDF positions (until 2008):
- Head of CDF detector operations
- Silicon sub-project leader and convener of the B-tagging group

Other:
- Referee for publications in Nuclear Instruments and Methods in Physics Research, A, Proceedings of Science (PoS), JINST and Frontiers
- Referee for funding programs in Spain (ANEP), UK (STFC) and Argentina (ANPCYT)