



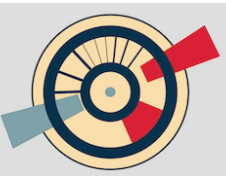
The
University
Of
Sheffield.



Working Group 4+5 Summary

Kristin Lohwasser
Ivica Puljak
Kadri Özdemir
Chara Petridou
Magdalena Slawinska

27-8-2021





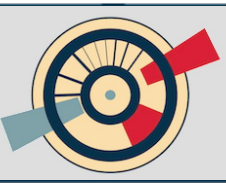
2017-2021

- Kristin Lohwasser
- kristin.lohwasser@cern.ch
- Research Fellow at the University of Sheffield
- ATLASA member since 2005
- Research interest: Effective field theory constraints, VBS+diboson production



2017-2021

- Ivica Puljak
- puljak@fesb.hr
- Professor of Physics at University of Split, Faculty of electrical engineering, mechanical engineering and naval architecture (FESB)
- CMS member
- **Mayor of the City of Split since June 2021**



WG5 leaders:

- Magdalena Sławińska

2017-2019



- magdalena.slawinska@cern.ch
- Assistant Professor at IFJ PAN (Kraków, Poland)
- ATLAS member since 2013
- research interests: Higgs couplings to polarised W bosons, di-Higgs phenomenology
- convenership activities (LHCHSWG HH group), supervision of students

- Chara Petridou

2017-2021

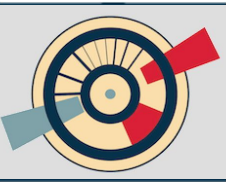


- chariclia.petridou@cern.ch
- Professor in Particle Physics at AUTH (Aristotle University of Thessaloniki, Greece)
- Team leader of the Thessaloniki ATLAS group (since 1995 an ATLAS Institute)
- Research interests: Indirect searches for New Physics, Vector Boson Scattering, Higgs couplings to bosons
- Active in WZ and ZZ analyses
- Supervision of MSc and PhD students



2019-2021

- Kadri Özdemir
- kadri.ozdemir@cern.ch
- Assoc. Professor at Piri Reis University, Engineering Faculty, Istanbul (TR)
- CMS member since 2008
- Research interests: BDT and DNN techniques in VBF/VBS analyses



- From the Memorandum of Understanding of our VBSCan COST action

WG4: knowledge exchange and cross-activities	
Main aim	Knowledge transfer as exchange of expertise, scientific tools and achievements, human resources and experience, spreading the VBS community with new ideas and unconventional thinking.
Tasks & Deliverables	<ul style="list-style-type: none">• Organisation of the internal events, STSM coordination• Implementation of the communication tools (website, mailing lists, wiki-based documentation collector, directory of VBS experts)• Outreach• Final Handbook publication• Final Conference organisation
Milestones	<ul style="list-style-type: none">• Full website delivery infrastructure, including jobs offers and candidates database, within 6 months• Events organisation and STSM handling well synchronised with the events schedule

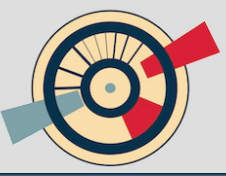


To do



STSM – Short term scientific missions

→ note: this has been somewhat muddled with WG5



WG4: Internal events

- <https://indico.cern.ch/category/9081/>

General meetings	36 events	⇒
WG1: theoretical understanding	28 events	⇒
WG2: analysis techniques	10 events	⇒
WG3: experimental measurements	19 events	⇒
WG4: knowledge exchange and crossactivities	16 events	⇒
WG5: Inclusiveness Policies	empty	⇒

General meetings

→ included organisation meeting

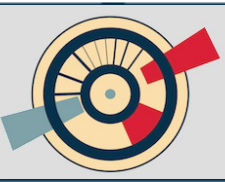
Lot's of topical meetings, arranged by local committees

Topical Meetings	4	
Annual Meetings	6	(incl. Kick-Off and MBI)
Mid-term meetings	2	
Schools	3	+1 training event
General Organisation	6	(school, WG selection comm.)
Core group	9	
Management committee	5	

Working group meetings are organised by WG leaders (no participant information)

WG4 meetings: includes also school organisation and similar meetings

WG5: included in WG4 or via email



WG4: General meetings



VBScan Kickoff Meeting
28-30 June 2017
Split, Croatia
42 participants

Overview
Timetable
Contribution List
My Conference
My Contributions
Registration
Participant List
Venue & Travel
Accommodation

Starts 28 Jun 2017, 08:00
Ends 30 Jun 2017, 14:00
Europe/Zurich

Split, Croatia
<https://www.bib.ir.it/visit>
<https://www.bib.ir.it/visit>



2nd VBScan Annual Meeting
19-21 June 2018
Thessaloniki
74 participants

RESTAURANT reservation
Overview
Timetable
Contribution List
My Conference
My Contributions
Registration
Participant List
Videoconference
The city of Thessaloniki
Accommodation
Practical Information
COVID-19 reimbursement

Starts 19 Jun 2018, 17:00
Ends 21 Jun 2018, 21:00
Europe/Zurich

Thessaloniki
Department of General Store of Aristotle Univ.
Thessaloniki, right in the middle of the campus
<https://open.groups.infn.it/2018/07/>

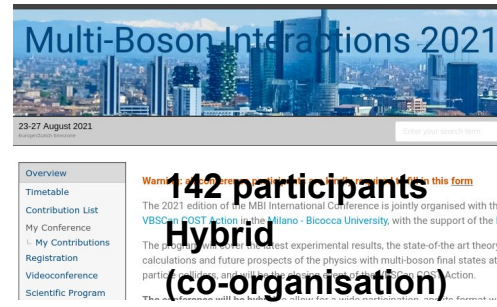


VBScan Mid-Term Scientific Meeting
2-4 July 2019
36 participants

Overview
Timetable
Contribution List
Practical Info
My Conference
My Contributions
Registration
Participant List
Videoconference Rooms
Accommodation
COVID-19 reimbursements
Venue and Practical Information

Starts 2 Jul 2019, 18:00
Ends 4 Jul 2019, 18:00
Europe/Zurich

General Room 1
Piri Reis University, Beside Campus
Program Building, Oflaz St. No. 3, 36460
Eskişehir, Turkey



Multi-Boson Interactions 2021
23-27 August 2021
142 participants

Overview
Timetable
Contribution List
My Conference
My Contributions
Registration
Videoconference
Scientific Program

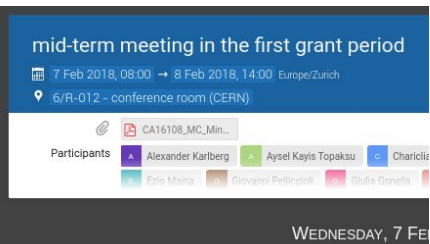
Starts 23 Aug 2021, 14:00
Ends 27 Aug 2021, 14:00
Europe/Zurich

Mano - Bicocca University

142 participants
Hybrid
(co-organisation)
Final conference

Warning: This event is cancelled. Please contact the organiser for more information.
The 2021 edition of the MBI International Conference is jointly organised with the VBScan COST Action in the Mano - Bicocca University, with the support of the INFN. The program will include the latest experimental results, the state-of-the-art theory calculations and future prospects of the physics with multi-boson final states at particle colliders.
The conference will be held in a hybrid format: in-person and online. For further information, please contact the organisers: mbi2021@mano.unibiccocca.it, marco.ferrero@unibiccocca.it

8 general meetings/workshops with in total more than 500 participants
Generally organised together with local organising committee



mid-term meeting in the first grant period
7 Feb 2018, 08:00 → 8 Feb 2018, 14:00 Europe/Zurich
6/R-012 - conference room (CERN)

Participants
Alexander Karlberg
Aysel Kayis Topakcu
Charicis
Ezio Maina
Giovanni Pellegrini
Otilia Gonella

WEDNESDAY, 7 FEB 2018



VBScan@Ljubljana: Second In-person Meeting in the Second Grant Period
10-12 February 2019
Ljubljana
49 participants

Overview
Timetable
Contribution List
My Conference
My Contributions
Registration
Participant List

Starts 10 Feb 2019, 11:00
Ends 12 Feb 2019, 13:00
Europe/Zurich

Ljubljana
Ljubljana Institute of Physics
Jadranska cesta 19
<https://www.tmf.uni-lj.si/en/faculty/obzorje/>



VBScan@Helsinki: Second In-person Meeting in the Third Grant Period
19-21 February 2020
University of Helsinki
42 participants

Overview
Timetable
Contribution List
My Conference

Welcome to VBScan@Helsinki!
The second in-person meeting in the third grant period of VBScan will take place on 19-21 February 2020 in the central campus of the University of Helsinki in the heart of the city.

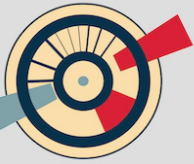


Winter 2021 topical meeting on VBS: VBS at Snowmass
25-29 January 2021
86 participants

Overview
Timetable
My Conference
My Contributions
Registration
Participants

Starts 25 Jan 2021, 14:00
Ends 29 Jan 2021, 18:00
Europe/Zurich

There are no more registrations.
Registration
You are registered for this event.



WG4: Topical meetings

7



10-12 October 2018 - Palaiseau

VBS Polarization Workshop LLR

10-12 October 2018
LLR

34 participants

Overview
Timetable
Contribution List
Registration
Participant List
Videoconference
Venue
Internet

The workshop is intended to review the status of theoretical predictions for polarized vector boson scattering as well as experimental techniques for the measurement of the different polarizations and the separation of the longitudinal component.



New techniques in particle reconstruction for VBS

22-24 October 2018
Krakow

27 participants

Overview
Timetable
Contribution List
Registration
Participant List
Videoconference


This workshop is intended to review the state of the art for the physics object reconstruction in the ATLAS and CMS experiments, identify areas where improvements could benefit VBS analyses and what new techniques may be used and start the work to get them done.

The programme will cover modern jet reconstruction, use of machine learning, high-energy leptons reconstruction, VBS final state description.

4 topical meetings with more than 100 participants

Suggested by working leaders (W1-W3) for topical in-person discussions in collaboration with local committees

Some support from VBScan



International Workshop on
BSM models in
Vector Boson Scattering processes

4-5 December 2019, Lisbon, Portugal

BSM models in Vector Boson Scattering processes

4-5 December 2019
LIP Lisbon

39 participants

Overview
Call for Abstracts
Timetable
Contribution List
Registration
Book of Abstracts
Participant List

The event is organized in the context of the VBS COST Action.

Starts 4 Dec 2019, 14:00
Ends 5 Dec 2019, 22:00
LIP Lisbon
TBA

Effective Field Theory in Polarised VBS

Tuesday 22 Sep 2020, 09:00 → 18:00 Europe/Zurich

Maria Brivio (University of Heidelberg), Marco Zaro (Università degli Studi e INFN Milano BT), Mathieu Pellen (University of Cambridge), Pietro Govoni (Università e INFN, Milano-Bicocca (IT))

Description: Workshop on the use of polarisation information in di-boson/VBS measurements to constrain EFT. Questions from experiment to theory (to be filled by anyone interested). Link to spread sheet

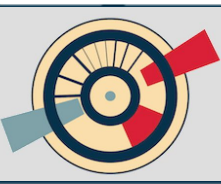
THE PRIMARY ROOM IS NOW online

09:00 → 10:30 EFT

Speakers: Maria Brivio (University of Heidelberg), Mathieu Pellen (University of Cambridge)

09:00 EFT interpretation of the Higgs boson production cross-section measurements in the 4l decay channel
Speaker: Verena Maria Wabrecht (Deutscher Elektronen-Synchrotron DESY)

09:30 Vector boson polarizations in the decay of the Standard Model Higgs
Speaker: Ezio Malta (Università degli Studi e INFN)



70 participants

FIRST EWSB SPRING SCHOOL
15-21 April 2018, Maratea, Italy
for PhD and Master Students

TOPICS
Theory of Electroweak Symmetry Breaking
Measurements and Experimental Techniques
Probability and Statistics for Data Analysis

Organizing Committee
André David
Pietro Govoni (chair)
Eilam Gross
Kristin Lohwasser
Matthias Ulrich Mozer
Martijn Mulders
Chariclia Petridou
Ivica Puljak
Magdalena Slawinska
Giulia Zanderighi

SCHOLARSHIPS AVAILABLE <https://indico.cern.ch/e/EWSBSS18> - subscriptions open until 01/02/2018

- 3 training schools + 1 training events
- Over 200 students / participants
- PREFIT school in collaboration with another COST action
- Training event together with in-person meeting

Training on Effective field theory, QCD, SMEFT at NLO: Higgs, EWK and Top, Machine Learning, Jet reconstruction, Fitting, Quantum Computing -- with hands-on exercises

80 participants

PREFIT School
Precision Effective Field Theory School
2-13 March 2020 at DESY, Hamburg

TOPICS
Experimental Techniques
Monte Carlo Generators
Machine Learning
Global fits
Effective Field Theory
Precision Physics at the LHC

LECTURERS
Ilaria Brivio, Kyle Cranmer,
Adam Grojean, Gudrun Heinrich,
Fabio Maltoni, Andrea Marin,
Antonio Pich, Gavin Salam,
Veronica Sanz, Michele Selvaggi,
Steven Schramm, Nicholas Wardle,
and others

ORGANIZING COMMITTEE
Senka Dunic, Pietro Govoni,
Andreas Meyer, Jürgen Reuter,
Vittorio del Duca, Beate Heinemann,
Borut Kersevan, Predrag Milenovic,
Svein-Olaf Moch, Chara Petridou,
Fotis Ptochos, Ivica Puljak,
Daniela Rebuszi, German Rodrigo,
Heidi Rehak, Wouter Waalewijn,
Marco Zaro, George Zoupanos

Lectures, hands-on sessions and group projects for theorists and experimentalists

Registration: <https://indico.cern.ch/event/prefit20>

VBSCan@Ljubljana: Training Event

12-15 February 2019
Ljubljana

31 participants

Advanced VBS training school

29 August 2021 to 3 September 2021
Università di Milano Bicocca

29 participants



• Website and communication



Home About & Contact Join Events STSM Outreach Publications Working groups ▾ More ▾

This website uses CERN's [piwik](#) to collect data about the website usage.
For more informations about the CERN's privacy policy see [home.cern/privacy](#)

News!

- All in-person meetings postponed due to COVID-19
The title says it all - virtual meetings can be organised via [indico](#) and [vidyo](#): <https://indico.cern.ch/category/9082/>
- International Multiboson Interactions Workshop
The international Multiboson Interactions Workshop (MBI), co-organised by VBScan, has started (23-27 August 2021). The hybrid format allows for remote participants to still register: <https://indico.cern.ch/event/1027184/overview>

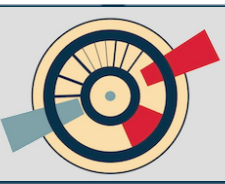
Upcoming public events

- Multi-Boson Interactions 2021
2021-08-23 13:50:00 (Europe/Zurich)
Category: General meetings
- Advanced VBS training school (Università di Milano Bicocca)
2021-08-29 12:30:00 (Europe/Zurich)
Category: General meetings

General use of CERN tools (twiki, indico) in combination with website (that dynamically reads some twiki/indico information).

Problematic points:

- Relatively few updates (2x per year in contract)
- For future: might be better to hire someone to also create content of website (videos, text, social media, ...)
- Website will stay for future: Should plan for one final update (any input you'd like → forward to WG4)



<https://vbscanaction.web.cern.ch/publications.html>

1. Non-INSPIRE

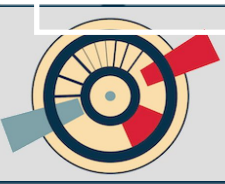
Ordered in:

1. Non-INSPIRE listed reports (13 reports)
2. Experimental publications (12 reports → should be extended, please report!)
3. INSPIRE-listed reports (27 reports)

I+3 are overlapping in that most of those use VBSCAN-PUB report numbers (46 in total)

Preprints, proceedings and publications not on inspire

- VBScan Mid-Term Scientific Meeting -- Baglio et al., <https://arxiv.org/abs/2004.00726>, VBSCAN-PUB-02-20
- Developing Careers in Physics Perspectives of Particle Physics Researchers from the VBScan network at various stages of their careers -- Kristin Lohwasser, <https://arxiv.org/abs/2001.00988>, VBSCAN-PUB-10-19
- Automated Predictions for Polarized Parton Scattering -- Diogo Buarque Franzosi, Olivier Mattelaer, Richard Ruiz and Sujay Shil, <http://arxiv.org/abs/1912.01725>, Published in J.High Energ. Phys. 2020, 82 (2020), VBSCAN-PUB-09-19
- VBScan Thessaloniki 2018 Workshop Summary , VBScan network, <https://arxiv.org/abs/1906.11332>, VBSCAN-PUB-05-19
- Same-sign WW Scattering in the HEFT: Discoverability vs. EFT Validity -- P. Kozow, L. Merlo, S. Pokorski, M. Szeleper, <https://arxiv.org/abs/1905.03354>, JHEP 1907 (2019) 021, VBSCAN-PUB-03-19
- QCD and electroweak corrections to WZ scattering at the LHC -- Ansgar Denner, Stefan Dittmaier, Philipp Maierhöfer, Mathieu Pellen, Christopher Schwan, <https://arxiv.org/abs/1904.00882>, Published in: JHEP 06 (2019) 067, VBSCAN-PUB-02-19
- Polarization Fraction Measurement in same sign WW scattering using Deep Learning -- Junho Lee, Nicolas Chanon, Andrew Levin, Jing Li, Meng Lu, Qiang Li, and Yajun Mao, <http://arxiv.org/abs/1812.07591>
- The CLIC Potential for New Physics -- J. de Blas et al., CERN-TH-2018-267 (2018), <http://arxiv.org/abs/1812.02093>
- Anomalous quartic gauge couplings and unitarization for the vector boson scattering process $pp \rightarrow W+W+jj X \rightarrow l+l+vj X$ -- G.Perez, M. Sekulla and D. Zeppenfeld, Eur. Phys. J. C 78 (2018) no.9, <http://arxiv.org/abs/1807.02707>
- Same-sign WW scattering at the LHC: can we discover BSM effects before discovering new states? -- Jan Kalinowski, Paweł Kozów, Stefan Pokorski, Janusz Rosiek, Michał Szeleper, Sławomir Tkaczyk, Eur. Phys. J. C 78 (2018) 403, <http://arxiv.org/abs/1802.02366>
- VBScan Split 2017 Workshop Summary -- Anders, Christoph Falk and others, 2018, VBSCAN-PUB-01-17, <https://arxiv.org/abs/1801.04203> (2018) 2018: 159., <https://arxiv.org/abs/1711.10310>
- Resonant production of Wh and Zh at the LHC -- Antonio Dobado, Felipe J. Llanes-Estrada and Sanz-Cillero, Juan J., J. High Energ. Phys. (2018) 2018: 159., <https://arxiv.org/abs/1711.10310>
- Collider production of electroweak resonances from YY states-- Rafael L. Delgado, Antonio Dobado, Miguel Espada, Felipe J. Llanes-Estrada, Ivan Leon Merino, JHEP 1811 (2018) 010, <https://arxiv.org/abs/1710.07548>



WG4: Publications: INSPIRE



<https://vbscanaction.web.cern.ch/publications.html>

Preprints

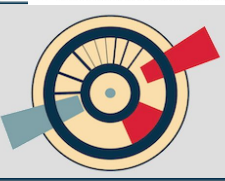
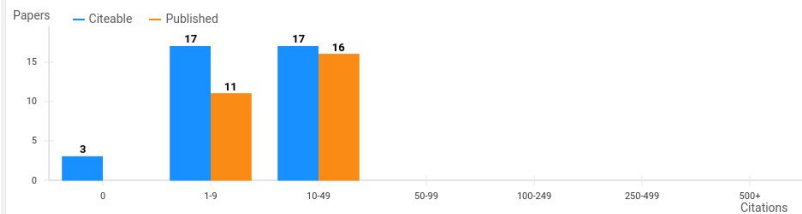
- Beyond the Standard Model in Vector Boson Scattering Signatures <https://inspirehep.net/literature/1797078>
- Vector boson fusion at multi-TeV muon colliders <https://inspirehep.net/literature/1797226>
- VBSCan Mid-Term Scientific Meeting <https://inspirehep.net/literature/1789399>
- Parton-shower effects in Higgs production via Vector-Boson Fusion <https://inspirehep.net/literature/1788584>
- Doubly Charged Higgs Boson Production at Hadron Colliders <https://inspirehep.net/literature/1771850>
- Automated predictions from polarized matrix elements <https://inspirehep.net/literature/1768399>
- Exploring the scattering of vector bosons at LHCb <https://inspirehep.net/literature/1750027>
- Dynamical vector resonances from the EChL in VBS at the LHC: the WW case <https://inspirehep.net/literature/1746619>
- Polarized vector boson scattering in the fully leptonic WZ and ZZ channels at the LHC <https://inspirehep.net/literature/1743206>
- VBSCan Thessaloniki 2018 Workshop Summary <https://inspirehep.net/literature/1741953>
- EFT triangles in the same-sign WW scattering process at the HL-LHC and HE-LHC <https://inspirehep.net/literature/1741437>
- An event generator for same-sign W-boson scattering at the LHC including electroweak corrections <https://inspirehep.net/literature/1738518>
- QCD and electroweak corrections to WZ scattering at the LHC <https://inspirehep.net/literature/1727600>
- Sleptons without Hadrons <https://inspirehep.net/literature/1717484>
- Heavy neutrinos with dynamic jet vetoes: multilepton searches at $\sqrt{s}=14, 27$, and 100 TeV <https://inspirehep.net/literature/1710387>
- Polarization fraction measurement in same-sign WW scattering using deep learning <https://inspirehep.net/literature/1710010>
- Heavy resonances and the electroweak effective theory <https://inspirehep.net/literature/1705201>
- Collider phenomenology of vector resonances in WZ scattering processes <https://inspirehep.net/literature/1704513>
- Colorful Imprints of Heavy States in the Electroweak Effective Theory <https://inspirehep.net/literature/1700399>
- Studies of Dimension-Six EFT effects in Vector Boson Scattering <https://inspirehep.net/literature/1693669>
- Vector Boson Scattering Studies in CMS: The $pp \rightarrow ZZjj$ Channel <https://inspirehep.net/literature/1683843>
- Transversal Modes and Higgs Bosons in Electroweak Vector-Boson Scattering at the LHC <https://inspirehep.net/literature/1681276>
- Precise predictions for same-sign W-boson scattering at the LHC <https://inspirehep.net/literature/1663469>
- Stress testing the vector-boson-fusion approximation in multijet final states <https://inspirehep.net/literature/1657798>
- Vector boson scattering: Recent experimental and theory developments <https://inspirehep.net/literature/1647952>
- Resonant production of Wh and Zh at the LHC <https://inspirehep.net/literature/1639286>
- W boson polarization in vector boson scattering at the LHC <https://inspirehep.net/literature/1632481>

3. INSPIRE-listed reports with VBSCan-PUB number

Citation Summary

Exclude self-citations \odot

	Citeable \odot	Published \odot
Papers	37	27
Citations	485	441
h-index \odot	13	13
Citations/paper (avg)	13.1	16.3



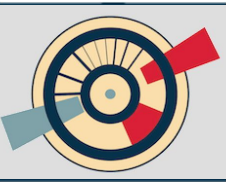
16 Action Handbook: collection of the publications and materials produced by the working groups into a single coherent report

ongoing

For each yearly workshop, VBSCan collects the status of the activities in a report that is then published on Open journals. The first report is published ([arXiv:1801.04203](https://arxiv.org/abs/1801.04203)), while the second one is being submitted. The final collection of all the Action papers will happen at a later stage.

Have published a number of review articles based on our meetings

The final handbook is prepared as a list of references within a small summary, in a twiki/on the webpage



WG4: Career Database

13

Collection of Particle physics jobs linked from VBScan Webpage:
<https://twiki.cern.ch/twiki/bin/view/VBScan/VBScanJobs>

Short survey of researchers

- General attitude towards Physics
- Inspiration: Why physics
- Change throughout the year
- Careers in Physics
- Career advice

Submitted to archive (ed-ph) <http://arxiv.org/abs/2001.00988>

arXiv:2001.00988v1 [physics.ed-ph] 2 Dec 2019



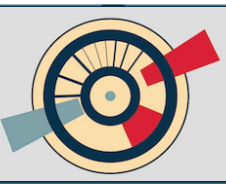
Developing Careers in Physics – Perspectives of Particle Physics Researchers from the VBScan network at various stages of their careers
VBSCAN-PUB-09-19

Kristin Lohwasser¹

¹Department of Physics and Astronomy, Sheffield University, Sheffield, UK

Abstract

Outlooks of particle physics researchers on their careers and the general challenges in establishing their careers over different career stages are investigated using a questionnaire distributed to participants in an ERC-funded research network, “VBScan”. The respondents displayed a great deal of insight into what is needed for a career in academia, or more specifically particle physics, though they also did not downplay the element of “luck”. Some notable differences between career levels could be observed in problems raised and attitudes towards careers.



Follow-up of Career Database: Professionals that have left physics

13 people replied on the work part (what's your work like, how is it different)

→ 10 are happy to be contacted

2 replied on the "old" physics-style

- 7 working in DE, 3 in GE, 1 IT, 1 in (Netherlands, France, Austria, Germany)
- Nice to get more examples from all around Europe (very Germany and probably experiment centered)

→ **Would still appreciated more replies / advertisement!**

Dear all,
we would like to create a database for a jobs outside academia, but concentrating more on the actual job content for people to be able to see what one does on a one-to-one basis. This is in order to show people real-life experiences from a wide range of people who have left particle physics.

In order to create this database or **summary of experience, we have created a survey (first link below [1])** and we would be grateful if you could fill it (anonymity is fully ok! It is really about the job experience in itself). On a second note, we would like to conduct a **survey on career, attitudes and feelings towards physics as well as career prospects inside and outside of academia [2]**. The 'inside' job has already been done (see <https://arxiv.org/abs/2001.00988>). If you'd happy to contribute to this project too, please also answer the survey in the second link.

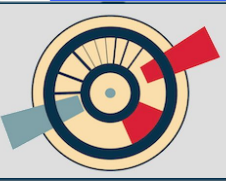
Best (VBScan network)

=====Job database

[1]https://docs.google.com/forms/d/1ucO7-_y_IiQerF3Hms8JEUx_gSZN1vPqrlr7P2SV0mEw/edit?usp=sharing

=====old career form

[2]https://docs.google.com/forms/d/1fngBBpoZkpxkt86-vkJXE7ir53DC5gpiZ8eGO_v1bUY/edit?usp=sharing



Ber and Brains
Meet physicists working at CERN
Find out what it's like at CERN!
Drinks and Discussion, no Talks
Drinks in whatever you like
Multiple languages spoken




Wednesday, 28 June 2017
20.00 - 23.00
LONDON Cafe
Presented by: matt

Pivo i mozgovi
Susret s fizicima koji rade u CERN-u u Zagrebu
Uspostavite vezu sa mladima iz LCPC
Pivo i diskusija, bez predavanja
Drinks and talk
Drinks in whatever you like




Drinks, 28. lipnja 2017.
20.00 - 23.00
Kavna LONDON
Presented by: matt

Coffees with CERNies
Meet physicists working at CERN
Find out what it's like at CERN!
Drinks and Discussion, no Talks
Drinks in whatever you like
Multiple languages spoken



Wednesday, 27 July 2017
19.00 - 23.00
Overseas Coffee
Cafe/Bar, Helsinki, Helsinki Coedens, No 122 Helsinki
Matti@overseascoffee.fi

CERN Fizikçileri ile Kahve
CERN'de çalışan fizikçilere tanışın...
LCPC'ye meraklıysanız, arkadaşlıklarınızı geliştirin.
Kahve konuşmaları, sohbetler, tartışmalar



Salı, 2 Temmuz 2017
19.00 - 20.00
Overseas Coffee
Cafe/Bar, Helsinki, Helsinki Coedens, No 122 Helsinki
Matti@overseascoffee.fi

Σηφιακά Επιστήμης



Συνάντηση επιστημονών του CERN!
Μαθε όλα όσα θα ήθελες να ξέρεις και δεν είχε η εκπαίδευση να σου δώσει!

Πως ένα ποτό με ελληνικά και ξένους επιστημονες και ανακάλυψε το σωματίδιο Higgs!

Τρίτη,
19 Ιουλίου 2018
20.30-23.00
ΥΨΗΛΑΝ, Εδέσσης 5

ARISTOTLE UNIVERSITY OF THESSALONIKI
LONDON
LONDON


Outreach generally organised as session during in-person meetings
→ in Pub/Cafe, talks/structured discussion followed by informally “mingling”

- Split, Krakow, Thessaloniki, Istanbul, Helsinki, Ljubljana
- Over 200 participants in total
- Informal discussions allow one-to-one conversations

Summarized on webpage:

<https://vbscanaction.web.cern.ch/outreach-general-public.html>

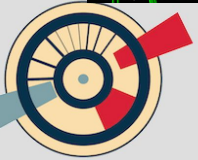
General problems: Local efforts (masterclasses, other outreach) already take up quite a lot of time → so events during Meetings are best/efficient solution, gives indeed also a meeting place for networking



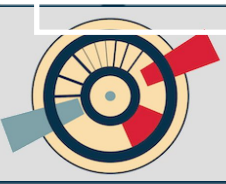
MEET PARTICLE PHYSICS

KOHTAA HIUKKASFYSIKKA
THINK CORNER/TIEDEKULMA 19.02.2020

http://cern.ch/physics-events-2016.html



- Generally successful completion of action
 - Few things were re-organised and worked efficiently: Local organising committees + school committee, WG5 taking over STSM coordination (better work balance)
- A few points, that did not go very well (→ meant to help for future COSTs)
 - Slightly difficult task (database of jobs) → be careful what you promise
 - Initial idea was to get “simple summaries” of STSMs and publish on website → was not always followed up properly (different people responsible for different parts of the process) and dropped after a while
 - Website: Add social media and request for someone proactive
 - Should probably have more regular management meetings



VBSCAN greatly encouraged STSMs during the four year period of the action

The STSM officers:

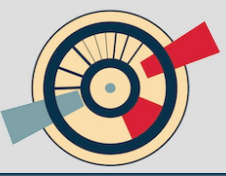
2017-2019



2019-2021



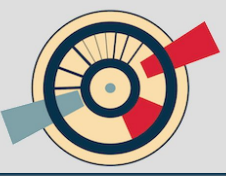
STSM Selection Committee: STSM officer + WG4 & WG5 leaders +
VBSCAN Action chair +
an elected representative of the MC



Summary of STSMs 2017- 2021

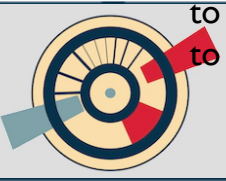
STSMs completed until August 2021

Number of STSMs	38
Number of ECIs funded	12
Number of researchers from ITCs	9
Number of female researchers	14
Total grant amount awarded	57614.7 euro
Total number of days	411



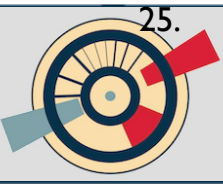
STSM Topics

1. MC Comparisons:WGI 13-17.11.2017 from Oxford to Nikhef,Amsterdam
2. MC Comparisons:WGI 13-17.11.2017 from DESY to Nikhef,Amsterdam (x2 persons)
3. MC Comparisons:WGI 13-17.11.2017 from Karlsruhe to Nikhef,Amsterdam
4. MC Comparisons:WGI 13-17.11.2017 from Cambridge to Nikhef,Amsterdam
5. MC Comparisons:WGI 13-17.11.2017 from Freiburg to Nikhef,Amsterdam
6. MC Comparisons:WGI 13-17.11.2017 from Torino to Nikhef,Amsterdam
7. MC Comparisons:WGI 12-17.11.2017 from Pavia to Nikhef,Amsterdam
8. Preparation of the Run2 WZ fully leptonic analysis 19.11-14.12.2018 from Dresden to Thessaloniki
9. Preparation of the Run2 WZ fully leptonic analysis 26.11-2.12.2018 from Dresden to Thessaloniki
10. EFT in action:extracting EFT constraints from actual data analyses 12.03-06.04.2018 from Copenhagen to Milano
11. Preparing framework for statistical analysis in the measurement of the Higgs boson couplings to longitudinally and transversally polarised W bosons 21-26.01.2018 from Krakow to CERN, Geneva, Switzerland
12. Higgs couplings to polarized W bosons in VBF: a framework for statistical analysis 15.01-15.02.2018 from Amsterdam to CERN, Geneva, Switzerland
13. EFT Comparison in VBF 25-30.03.2018 from Karlsruhe to Milan.
14. Study of statistical procedure of extracting WZVBS cross sections through a fit and use this information further to extract aQGCs and contribute to the combination of the ATLAS and CMS 25-30.03.2018 from Thessaloniki to ITKP, Dresden



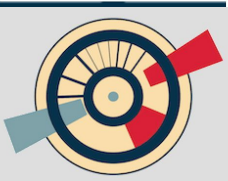
STSM Topics

15. Implementation and Investigation of EFT Models 12.03-06.04.18 from Durham to Milano, Italy
16. Study on separating Higgs couplings to longitudinally and transversally polarised W bosons, implementation of statistical procedure 12-27.04.2018 from Amsterdam to CERN, Geneva, Switzerland
17. Studies on the extracting longitudinal polarization through angular distributions 5-10.08.2018 from Pavia to Ljubljana, Slovenia
18. Study of kinematics of the jets in VBS processes 20-29.09.2018 from İstanbul to Sheffield, UK
19. W boson reconstruction with neural network 03.12-08.12.2018 from Ljubljana to Pavia
20. VBS analysis in the CMS experiment 20.02-6.03.2019 from Milano to CERN
21. Improvement and refinement of tools towards the computation and precise description of vector-boson scattering at the LHC 6-12.01.2019 from Wuerzburg to Cambridge
22. Global fit on the parameters of Dimension-6 or Dimension-8 operators of the SM Effective Field Theory(I) 18.02-06.03.2019 from Thessaloniki to CERN
23. Global fit on the parameters of Dimension-6 or Dimension-8 operators of the SM Effective Field Theory(II) 13.02-22.02.2019 from Thessaloniki to CERN
24. Global fit on the parameters of Dimension-6 or Dimension-8 operators of the SM Effective Field Theory(III) 13.02-27.02.2019 from Thessaloniki to CERN
25. Electroweak corrections for VBS at the LHC 18.03-22.03.2019 from Cambridge to Wuerzburg



STSM Topics

26. VBS studies using same-sign WW events using full Run-II LHC data 25.02-14.03.2019 from Budapest to Antwerp
27. Color Evolution in VBS/VBF 25.03-14.04.2019 from Karlsruhe to Vienna
28. BDT and DNN multivariate analysis techniques for VBF jets 30.03-07.04.2019 from Istanbul to Helsinki
29. Rapidity-dependent, Dynamic Jet Vetoes in VBS Searches for Type II Seesaw Scalars 03.04-14.04.2019 from Louvain-la-Neuve to Ljubljana
30. Comparing the SMEFT and eCHL in the context of VBS experimental analyses 25.05-10.06.2019 from Durham to Madrid
31. VBS ZZ to 4l with CMS 24.07-05.08.2019 from Split to Palaiseau
32. New techniques in VBS study part 2 18.08-23.08.2019 from Pavia to Zurich
33. Run 2 Analysis Collaboration of Ioannis Karkanias with ATLAS group of LAPP Annecy 09.11-09.12.2019 from Thessaloniki to Annecy
34. Advance Techniques to Maximize the Information Content of Multivariate and Multiparameter Estimation in the Framework of SMEFT Approach (I) 06-13.02.2020 from Thessaloniki to Sheffield
35. Advance Techniques to Maximize the Information Content of Multivariate and Multiparameter Estimation in the Framework of SMEFT Approach (II) 06-13.02.2020 from Thessaloniki to Sheffield
36. Extensions of the Same-Sign WW VBS analysis 15-29.02.2020 from Milano to CERN
37. New techniques in VBS study part 3 29.03-05.04.2020 from Pavia to Zurich



- From the Memorandum of Understanding of our VBSCan COST action

WG5: Inclusiveness Policies

Main aim Full inclusion of researchers that, for geographical or sociological reasons, might need specific policies to get on the same footing as the rest of the community.

Tasks & Deliverables

- ECI promotion through STSM and as managers of the Action
- counteract gender imbalances, also promoting women in manager positions
- support members of COST ITC through STSM and organisation of events there

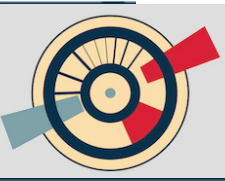


Milestones

- Review of the effectiveness of inclusion policies every six months
- organisation of topic discussions on inclusiveness issues during the yearly meetings, the MTSM and the final conference

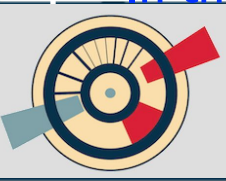


ECI – Early Career Investigator
ITC – Inclusiveness Targeted Countries
MTSM – Mid-term Scientific Meeting



Ensured Inclusiveness Policies in terms of **Inclusiveness Targeted Countries (ITCs)**, **age** and **gender** are applied:

- In the Management Committee (MC)
- In the Core Group
- In the approved Short Term Scientific Missions (STSMs)
- In the leadership roles within VBSCan (e.g. in activities like: paper editing, organizing committees of Schools, Annual meetings and Training activities, search committees etc)
- In the supports given for attending the training schools
- In the selection of the lecturers at the training schools
- In the participation/organization of the outreach events



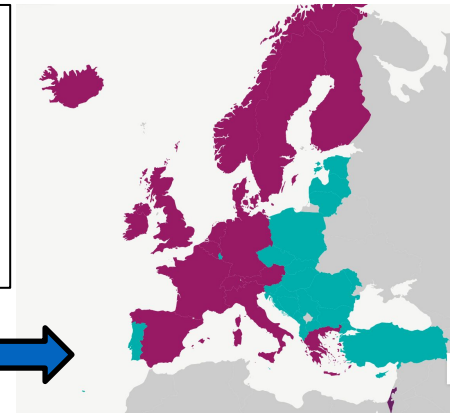
VBSCAN Geographical Inclusiveness:

Initially, in 2017, 18 COST Member Countries were participating in the action
Today, 2021:

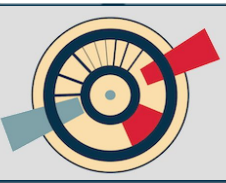
- 24/39 COST Members + Cooperating Member □ 61.5%
- 9/24 are considered as Inclusiveness Targeted Countries (ITCs) □ 37.5%
- 1 Near Neighbour Country (NNC) □ Morocco and
- 3 International Partner Countries (IPC) □ Brazil, China (2 Institutes), USA

COST Members/Cooperating Member:

Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom; and Israel (Cooperating Member).



ITC: Albania, Bosnia and Herzegovina, Bulgaria, Cyprus, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Latvia, Luxembourg, Malta, Moldova, Montenegro, Poland, Portugal, Romania, Slovenia, Slovakia, Republic of North Macedonia, Republic of Serbia and Turkey

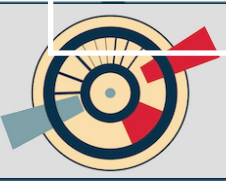


I. ITC

- Achieved since 2017 : - 5 more ITC countries joined the Action (Cyprus, Hungary, Portugal, Serbia, Turkey)
 - 10/34 participants to the 1st training school, from ITC countries
 - 9 of the 2nd school from ITC countries
 - 9/38 STSM researchers from ITC countries

The MC always allocates funds for ITC members to participate at conferences and encourages STSM applications from these countries.

Comment: The inclusion of ITCs is a challenging objective □ small number of researchers from ITCs in our field. (CERN Lab Users from Bosnia & Herzegovina, Latvia, Luxembourg, Malta, Montenegro, Northern Macedonia is less than 10 in each !)

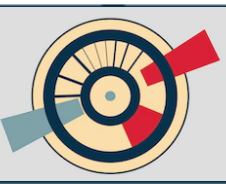


I. Summary Table on ITC

- Achieved: Increase on Participating countries, MC members, Leadership roles
- Comparison to all COST actions

	Participating countries %ITC	MC Members %ITC	Leadership roles %ITC	Rel. represent. of ITC in leadership roles
Action CA16108	37.5%	32.3%	22.2%	59.2%
All Actions	48%	46%	24%	52%

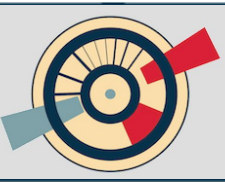
- The ITC partners are strongly encouraged to
 - get involved in the activity of their interest within the Action,
 - profit from STSM to strengthen their contribution,
 - profit from available conference grants to present at conferences,
 - promote their ECIs to take a leading role in the Action.



2. Leadership positions given to ECIs

- Achieved: - 3/5 WG leaders are ECIs
 - 30-40% of the Core group are ECIs
 - 12/38 STSMs awarded to ECIs
- *Comment: The Action sponsored the publication of obtained results in open-access journals, which enriches the ECI's CV.*

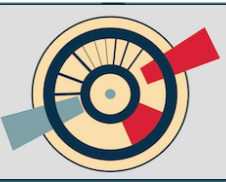
	MC Members %ECI	Leadership roles %ECI	Rel. represent. Of ECIs in leadership roles
Action CA16108	14.7%	30%	204%
All Actions	29%	10%	34%



3. On gender representation

- Achieved: - 3/5 WG leaders are women
 - Out of 38 STSMs 14 realized by women
 - About 30% of the trainees in the 1st school were women (number higher than the average population in the field).
- *Comment: The female involvement in our VBSCan activity is higher than the world average in our field (represented by CERN)*

	MC Members %Females	Leadership roles %Females	Rel. represent. Of Females in leadership roles
Action CA16108	23.5%	44.4%	189%
All Actions	40%	14%	35%



- Generally successful completion of the Action. The goals of the WG5 were mostly achieved
 - On inclusiveness VBSCAN did well over the average in all COST Actions concerning ECI's and gender balance.
 - By assigning the STSMs coordination to WG5 the workload was better balanced between WG4 and WG5
- A few points, that did not go very well (→ meant to help for future COSTs)
 - A stronger involvement in the school organization and realization (sharing the workload with WG4)
 - More effort to include in the Action a couple more ITC countries which are active in the field.

