

Pre-Opening  
7 July 2021

# ICRC 2021

THE ASTROPARTICLE PHYSICS CONFERENCE  
Berlin | Germany



by  
Johannes Knapp  
Lea Sophie Preece  
DESY

[icrc2021.desy.de](http://icrc2021.desy.de)



ERLANGEN CENTRE  
FOR ASTROPARTICLE  
PHYSICS



**WELCOME**

... to the **37<sup>th</sup> International Cosmic Ray Conference**



37<sup>th</sup> International  
Cosmic Ray Conference  
12–23 July 2021

Reichstag  
(Parliament)

Victory Column

TV Tower

Red City Hall

Philharmony

Otto Lilienthal's  
Airplane

World Trade  
Center

Brandenburg  
Gate

Kaiser Wilhelm  
Memorial Church  
Ruin and New Tower

Berlin Dome

# STATISTICS (prel.)

**1683 participants**

1172 with contributions  
511 without contribution

83 free undergraduates  
18 reduced fee (young scientists)

**1384 contributions**

**A significant increase  
to previous ICRCs**

from **55** countries:  
in timezones from

**Argentina ... USA**  
**UTC -10 to +9:30 h**

## Contributions:

CRI	316	22.9%
GAI	255	18.5%
NU	219	15.6%
CRD	132	9.6%
SH	127	9.2%
GAD	110	8.0%
MM	93	6.7%
DM	87	6.3%
O&E	40	2.9%

# A BIG CHALLENGE

... for organisers and participants

**ONLINE**

**ICRC 2021**  
THE ASTROPARTICLE PHYSICS CONFERENCE  
Berlin | Germany

**37<sup>th</sup> International  
Cosmic Ray Conference  
12–23 July 2021**

*First time...  
online*

A stylized, colorful silhouette of the Berlin skyline. From left to right, it includes the Reichstag dome (purple), the Victory Column (blue), the Brandenburg Gate (orange), the Berlin TV Tower (orange), the Berlin Palace (yellow), the Berlin Cathedral (pink), the Berlin Clock Tower (blue), the Berlin Cathedral (green), and the Berlin Philharmonie (orange). A small airplane is flying in the sky above the skyline.

# PRE-OPENING

**7 July: Lecture and Demo**

**Part 1**  
**Lecture**  
(J Knapp)

## **Structure and components of this ICRC**

plenary and parallel sessions, presenter forum  
archive of contributions,  
scientific program,  
proceedings

## **Tools used**

ViMP, Zoom, Remo, + Indico, PoS

**Navigate timetable, find materials, make your own timetable**

**Access to conference materials and sessions**

**Contact presenters/participants, comment & ask, meet & mingle**

## **Get help**

FAQs, Support staff, helpdesks

## **Fringe events**

Fairs, Careers, Diversity, Sustainability, Public lecture, explore Berlin

**Part 2**  
**Demo**  
(LS Preece)

**How To ...**

**Access the Conference Platform and upload materials?** ViMP, PoS

**Browse the program?** books of abstracts

**Put sessions and contributions of interest in My Timetable?**

**View live sessions and recorded talks?** Zoom, live stream, recorded

**Participate in discussions sessions?** Zoom, live streamed and recorded

**Participate in the Presenter Forum?** Remo tool

**Comment, ask or answer questions?**

**Find, meet, interact with participants?** Participants lists, PM in Conf. Platform,  
presenter forum, coffee bars

**Join fringe events?** Fairs, Careers\* \*, Diversity \* \*, Sustainability in AP  
Public Evening Lecture, Explore Berlin

**Get help?** FAQs, Support staff, helpdesks

# STRUCTURE AND COMPONENTS

core time: 5:00 - 9:00 LA time  
 14:00 -18:00 Berlin time, UTC+2  
 21:00 - 1:00 Tokyo time

12–23 July 2021

## Timetable | Basic Structure

Timezones					Wednesday 07th July	Monday 12th July	Tuesday 13th July	Wednesday 14th July	Thursday 15th July	Friday 16th July	Saturday	Sunday	Monday 19 July	Tuesday 20st July	Wednesday 21st July	Thursday 22nd July	Friday 23rd July
LA	NY	Berlin	Mos	Tok													
03:00	06:00	12:00	13:00	19:00			Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel			Presenter Forum	Discussion 5 Parallel	Discussion 5 Parallel	Scientific Writi Course 02 Part	Scientific Writi Course 02 Part
04:30	07:30	13:30	14:30	20:30			O&E						Science Fair Industry Fair				
13:00																	
14:00	05:00	08:00	14:00	15:00	21:00	Pre -Conference Welcome	Opening	Review	Review	Review	Highlights		Review	Review	Highlights	Rapporteurs	Rapporteurs
	06:30	09:30	15:30	16:30	22:30	FAQ Helpdesk		Exhibition	Exhibition	Exhibition	Exhibition	no programm	Exhibition	Exhibition	Exhibition		
	07:00	10:00	16:00	17:00	23:00		Highlights	Highlights	Highlights	Highlights	Highlights		Highlights	Highlights	Highlights	Rapporteurs	Rapporteurs
	08:30	11:30	17:30	18:30	00:30												
18:00	09:00	12:00	18:00	19:00	01:00		Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Presente Forum		Discussion 5 Parallel	Discussion 5 Parallel	Sustainability	Scientific Writi Course 01 Part	Scientific Writi Course 01 Part
	10:30	13:30	19:30	20:30	02:30						Industry Fair Science Fair		O&E			Diversity Disc.	Public Lecture in german
19:00																	Closing
	11:00	14:00	20:00	21:00	03:00												
	12:30	15:30	21:30	22:30	04:00												

**plenary sessions:**  
**invited reviews**  
**highlight talks**  
**rapporteur talks**

# STRUCTURE AND COMPONENTS

core time: 5:00 - 9:00 LA time  
 14:00 -18:00 Berlin time, UTC+2  
 21:00 - 1:00 Tokyo time

12–23 July 2021

## Timetable | Basic Structure

Timezones					Wednesday 07th July	Monday 12th July	Tuesday 13th July	Wednesday 14th July	Thursday 15th July	Friday 16th July	Saturday	Sunday	Monday 19 July	Tuesday 20st July	Wednesday 21st July	Thursday 22nd July	Friday 23rd July				
LA	NY	Berlin	Mos	Tok																	
03:00	06:00	12:00	13:00	19:00																	
04:30	07:30	13:30	14:30	20:30																	
13:00	<div style="border: 2px solid green; padding: 5px;">                     Discussion 5 Parallel                      O&amp;E                 </div>													Scientific Writi Course 02 Part	Scientific Writi Course 02 Part						
14:00	05:00	08:00	14:00	15:00	21:00	Pre -Conference Welcome	Opening	Review	Review	Review	Highlights	no programm	no programm	Review	Review	Highlights	Rapporteurs	Rapporteurs			
	06:30	09:30	15:30	16:30	22:30	FAQ Helpdesk		Exhibition	Exhibition	Exhibition	Exhibition			Exhibition	Exhibition	Exhibition					
	07:00	10:00	16:00	17:00	23:00		Highlights	Highlights	Highlights	Highlights	Highlights			Highlights	Highlights	Highlights	Rapporteurs	Rapporteurs			
	08:30	11:30	17:30	18:30	00:30																
18:00	09:00	12:00	18:00	19:00	01:00		Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Presente Forum Industry Fair Science Fair			Discussion 5 Parallel	Discussion 5 Parallel	Sustainability	Scientific Writi Course 01 Part	Scientific Writi Course 01 Part	Diversity Disc.	Public Lecture in german	Closing
19:00	10:30	13:30	19:30	20:30	02:30									O&E							
	11:00	14:00	20:00	21:00	03:00																
	12:30	15:30	21:30	22:30	04:00																
	<div style="border: 2px solid green; padding: 5px;">                     Career &amp; Diversity Speed Dating with a tenured physicist                 </div>																				

**Parallel sessions:**  
 Discussions on physics topics,  
 Presenter Forum



# STRUCTURE AND COMPONENTS

core time: 5:00 - 9:00 LA time  
 14:00 -18:00 Berlin time, UTC+2  
 21:00 - 1:00 Tokyo time

12–23 July 2021

## Timetable | Basic Structure

Timezones					Wednesday 07th July	Monday 12th July	Tuesday 13th July	Wednesday 14th July	Thursday 15th July	Friday 16th July	Saturday	Sunday	Monday 19 July	Tuesday 20st July	Wednesday 21st July	Thursday 22nd July	Friday 23rd July			
LA	NY	Berlin	Mos	Tok																
03:00	06:00	12:00	13:00	19:00																
04:30	07:30	13:30	14:30	20:30																
05:00	08:00	14:00	15:00	21:00	Pre -Conference Welcome  FAQ Helpdesk	Opening	Review	Review	Review	Highlights	no programm		Review	Review	Highlights	Rapporteurs	Rapporteurs			
06:30	09:30	15:30	16:30	22:30			Exhibition	Exhibition	Exhibition	Exhibition	no programm	Exhibition	Exhibition	Exhibition	Rapporteurs	Rapporteurs				
07:00	10:00	16:00	17:00	23:00	Highlights	Highlights	Highlights	Highlights	Highlights	no programm		Highlights	Highlights	Highlights	Rapporteurs	Rapporteurs				
08:30	11:30	17:30	18:30	00:30																
09:00	12:00	18:00	19:00	01:00	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Presenter Forum	no programm		Discussion 5 Parallel	Discussion 5 Parallel	Sustainability	Scientific Writi Course 01 Part	Scientific Writi Course 01 Part	Diversity Disc.	Public Lecture in german	Closing
10:30	13:30	19:30	20:30	02:30	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Discussion 5 Parallel	Industry Fair Science Fair	Discussion 5 Parallel	O&E	Discussion 5 Parallel	Discussion 5 Parallel							
11:00	14:00	20:00	21:00	03:00																
12:30	15:30	21:30	22:30	04:00																
										Career & Diversity Speed Dating with a tenured physicist										

**Fringe events:**  
 Fairs  
 Careers  
 Diversity  
 Sustainability  
 Public Lecture

# THE SCIENCE BRANCHES

**CRI**      **Cosmic Ray Indirect**

**CRD**      **Cosmic Ray Direct**

**GAI**      **Gamma Ray Indirect**

**GAD**      **Gamma Ray Direct**

**NU**      **Neutrino Astronomy and Physics**

**SH**      **Solar & Heliospheric**

**DM**      **Dark Matter Physics**

**MM**      **Multi-Messenger Physics**

**OE**      **Outreach & Education**

division for practical reasons only,  
actually a lot of overlap between branches

new in 2021

# INVITED REVIEW TALKS

Cosmic Magnetic Fields	Tess Jaffe
GRBs at VHE	Lara Nava
Dark Matter - Knowns and Unknowns	Tracy Slatyer
Solar Flares	Melissa Pesce-Rollins
Underwater Neutrino Telescopes: Status and Future	Paschal Coyle
Cosmic Rays and LHC	Hans Dembinski
Multi-Messenger Astronomy and GW Events	Brian Metzger
Cosmic ray propagation	Huirong Yan
Energetic Particle Observations Close to the Sun	Olga Malandraki
Turbulence and Its Impact on Particle Acceleration/Transport and the Formation of Source Gamma-Ray Spectra	Siayo Xu

**5 Sessions**  
**10 Talks**

# HIGHLIGHT TALKS

Highlights from AMS	Javier Berdugo
Neutrino Telescope in Lake Baikal: Present & Nearest Future	Igor Belolaptikov
GRB 200415A: the Giant Magnetar Flare in the Sculptor Galaxy	Niccolo di Lalla
Tidal Disruption Events	Robert Stein
Transition from Galactic to Extragalactic CRs	Alex Käätä
GRB 190829A Long Afterglow Measurement with HESS	Dmitry Khangulyan
Highlights from Direct Dark Matter Detection Experiments	Marc Schumann
Highlights from the Telescope Array Experiment	Grigory Rubtsov
Highlights from the Pierre Auger Observatory	Ralph Engel
MeV Gamma-Ray Astrophysics	Andreas Zoglauer
Highlights from Gamma-Ray Observation by the Tibet ASgamma Experiment	Masato Takita
Space Weather: Earth, Neighboring Planets and Exoplanets	Norma Crosby
New Results From the First 5 Years of CALET Observations on the International Space Station	Pier Simone Marrocchesi
Recent Status and Results of the Dark Matter Particle Explorer	Xiang Li
Blazars and IceCube Neutrinos	Foteini Oikonomou
IceCube: The Window to the Extreme Universe (Status & Outlook)	Marek Kowalski
Nearly a Decade of Cosmic Ray Observations in the LIM	Jamie Rankin
Highlights from GRAPES	Pravata Mohanty
Highlights from LHAASO	Zhen Cao
Searching for Dark Matter from the Sun with Ten Years of IceCube	Jeffrey Lazar
Homochirality in Nature and Cosmic Rays	Noemie Globus
Theory of Particle Acceleration	Rebecca Diesing
Atmospheric Neutrino Oscillations with Super-Kamiokande and Prospects for SuperK-Gd	Pablo Fernandez Menendez
<a href="https://astronomia.udp.cl/category/outreach/">Inclusive outreach events (https://astronomia.udp.cl/category/outreach/)</a>	Erika Labbé
Review of CR Source Models	Michael Kachelrieß
Cherenkov Telescope Array - Status Including Results of LST1 - and Prospects	Roberta Zanin
The Askaryan Radio Array (ARA): 9 yr Results	Kara Hoffman
<b>Theatre of Dreams</b>	
The Southern Wide-field Gamma-ray Observatory: Status and Prospects	Jim Hinton
The Pacific Ocean Neutrino Experiment at Ocean Networks Canada: First Results	Elisa Resconi
The Radio Neutrino Observatory Greenland (RNO-G): Status	Stephanie Wissel
The High Energy cosmic-Radiation Detection (HERD) Facility on Board the Chinese Space Station:	Fabio Gargano
The Global Cosmic Ray Observatory GCOS	Jörg Hörandel

**10 Sessions**  
**32 Talks**

# RAPPORTEUR TALKS

CRI	Tareq	Abu-Zayyad	University of Utah
CRD	Philipp	Mertsch	RWTH
DM	Marco	Taoso	INFN Torino
SH	Roelf	Du Toit Strauss	North-West University
O&E	Michael	Burton	Armagh Observatory
MM	Irene	Tamborra	Niels Bohr Institute
NU	Anna	Nelles	DESY   Erlangen
GAI	Alison	Mitchell	ETH
GAD	Regina	Caputo	NASA/GSFC

**4 Sessions**  
**9 Talks**

# CONTRIBUTIONS

**1384 accepted contributions**

**710 talks**

pre-recorded 12-min talk, slides

**674 posters**

poster, pre-recorded 2-min flash talk, slides

assessed by the **International Science Program Committee (ISPC)** (~50 persons)

# DISCUSSION SESSIONS

1384 accepted contributions

710 talks	(12 min)
674 posters	(2 min)

**broad physics topics:  
what's new since last ICRC?  
status? limitations?  
what's next?**

Far too many contributions for sequential presentation.

Get more interaction and communication into a virtual meeting.

➔ **Discussion Sessions (5x parallel) on Physics Topics!**

^ selected by the ISPC

with **contributions fitting the topics**

^ selected by the ISPC  
and 2-3 session conveners

# DISCUSSION SESSIONS

**57 sessions**  
**5 x parallel**

Magnetic Fields and CR Propagation  
Constraining UHECR sources  
Muon Puzzle and EAS modeling  
CR Energy Spectrum  
CR Mass composition  
CR Anisotropies  
Where to go in UHECR observations  
Radio Observations of Cosmic Rays  
Atmospheric and geophysical phenomena  
EAS reconstruction and analyses  
UHECR Acceleration  
Galactic Particle Acceleration, including PIC  
New Instrumentation and Tools for EAS Detection  
Cosmic Rays and the Interstellar Medium  
Future instrumentation  
Cosmic Ray Antiparticles and Electrons  
Nuclear CR spectra: theory and observations  
Cosmic Ray Secondary nuclei: observations, theories  
SEP Acceleration and Propagation  
GCR long-term modulation (spectra, composition)  
Short-term modulation (Forbush dec., diurnal variations, etc.)  
Atmospheric effects of CR  
Solar Events observed on/near Earth  
Ground-based measurements of low-energy GCRs  
Blazars, AGN  
Galactic Sources & Winds  
GW Follow-Up Observation  
Searches for Transients  
Fundamental Physics with Neutrinos

Cherenkov Media & Detector Calibration  
Photodetection in Cherenkov Detectors  
Radio Detection of Neutrinos  
Upgoing Tau Neutrinos: Present and Future  
Shower Reconstruction and Pointing  
Reconstruction & Analysis Techniques  
The Future of Neutrino Telescopes  
Astrophysical Neutrinos – Results  
Dark Matter Indirect Detection, Cosmological Substructures  
Indirect Dark Matter Detection Through Photons and Neutrinos  
Direct Dark Matter: Present and Future  
New and Upcoming Instruments for Space-Based Gamma-Ray Astronomy  
The Origins of Galactic Cosmic Rays  
Probing the Distribution of Cosmic Rays in Galaxies  
Supernova Remnants  
Central engines of fast transients: Gamma-Ray Bursts and Fast Radio Bursts  
Modelling AGN's spectral energy distribution  
Studying the variable emission from AGN in a multi-wavelength context  
Galactic Compact Objects: Pulsars, Binary Systems, Microquasars  
Census of Gamma-Ray Sources (catalogs, source populations, unid. sources)  
Analysis, Methods, Catalogues, Community Tools, Machine Learning...  
Pulsar Wind Nebula and Halos  
Gamma-Ray Bursts in the VHE regime  
Ultra-High-Energy Gamma-Ray Sources and PeVatrons  
New Instruments, Future Projects Gamma Ray Astronomy on Earth  
New Physics (e.g. LIV, BSM, exp/theo)  
Outreach online  
Schools and tools



# DISCUSSION SESSIONS

12:00-14:00

18:00-20:00

12.7.

CRI 1 mag fields & CR propag.	GAD, GAI, 51 Census gal. sources	NU 31 fund physics neutrinos	MM 25 Blazars, AGN	SH 19 SEP Accel. & Propag.
-------------------------------------	--	------------------------------------	-----------------------	----------------------------------

13.7.

CRI 2 constraining UHECR srcs	GAD, GAI, 52 Anal. meth., cat, comm. tools, ML	NU 32 Ch. media & det. calib	CRD, MM 15 Future instr.	O&E 29 Outreach Online	CRI 5 CR mass composition	GAD, GAI, 48 MM AGN & Jets 1	NU 33 photo detect. in Ch. detect.	CRI, NU 8 Radio obs. of Cosmic Rays	DM 42 direct DM
-------------------------------------	--	------------------------------------	-----------------------------	------------------------------	---------------------------------	------------------------------------	--	---	--------------------

14.7.

CRI 4 CR energy spectrum	GAI 55 UHE sources PeVatrons	NU 34 radio detec. of neutrinos		SH 20 GCR long. modul.	CRI 3 mu puzzle & EAS Models	GAD, GAI, MM 47 centr. engine of GRBs FRBs	NU 35 upgoing tau neutrinos	CRD 17 Nuclear CR spectra	SH 21 short.term modulation
--------------------------------	------------------------------------	---------------------------------------	--	------------------------------	------------------------------------	--	-----------------------------------	---------------------------------	-----------------------------------

15.7.

CRI 6 CR anisotr.	GAD, GAI 49 MM AGN & Jets 2		CRD 14 CRs and ISM	SH 22 atm. effects CRs	CRI 7 where to go in UHE obs.	GAD, GAI, 44 CRD Origin of gal CRs	NU 37 rec & ana techniques	CRD, DM, 16 GAD, MM CR Antipart.	SH 23 Solar Evts obs. near earth
----------------------	-----------------------------------	--	-----------------------	------------------------------	-------------------------------------	---	----------------------------------	--	--

16.7.

CRI, CRD 12 MM Gal part. acceleration	GAD, GAI 50 Gal Comp obj	NU 36 shower rec. pointing	MM 28 Search for Transients
--	-----------------------------	----------------------------------	-----------------------------------

19.7.

CRI 9 atm. geo. phenomena	GAD, GAI, 45 CRD Distr. of gal CRs	NU 39 astrophys neutrinos	CRD 18 CR 2nd. nuclei	O&E 30 School and Tools
---------------------------------	--	---------------------------------	--------------------------	-------------------------------

20.7.

CRI 10 EAS rec & ana	GAD, GAI, 46 CRD SNRs	NU 38 future neutrino tels	GAI 56 new instr. ground based	DM 40 DM indirect cosmol subst.	CRI 11 UHECR Acceleration	GAD, GAI, 53 PWN & Halos	GAD 43 new instr. Space	MM 27 GW follow up	all 57 new physics LIV, BSM
-------------------------	-----------------------------	----------------------------------	--------------------------------------	---------------------------------------	---------------------------------	-----------------------------	-------------------------------	-----------------------	-----------------------------------

21.7.

CRI 13 New inst. and tools for EAS	GAI 54 GRBs in VHE	DM, NU 41 DM indirect phot. & neutr.	MM 26 Gal sources & winds	SH 24 Ground obs, low E CRs
--	-----------------------	--	---------------------------------	-----------------------------------

Room 1: CRI  
Room 2: GAI/ GAD  
Room 3: NU  
Room 4: MM, CRD  
Room 5: SH, DM, OE

with few  
exceptions

Good compromise in: early / late,  
all time constraints taken into account.

# PRESENTER FORUM

Contributions (talks or posters) not selected into a discussion session,  
Industry & science fair exhibits (~550 contributions)



**Friday 16 July, 18:00 - 19:30**  
**Monday 19 July, 12:00 - 14:00**  
presenters **attend both**

Each contribution has a “table”  
on a “floor” in a “hall”. (15 x 9 x 5 = 675)

Pin up a poster or slides and discuss with  
up to 5 visitors at a time.  
Visitors stroll from table to table

Hall 1: CRI  
Hall 2: GAI  
Hall 3: GAD, MM, NU  
Hall 4: CRD, SH  
Hall 5: DM, OE, Exhibitions

# REPOSITORY OF TALKS

**10 Invited Review Talks**

**32 Highlight Talks**

**9 Rapporteur Talks**

**total: 30 h**

**all live** recorded, slides  
for offline viewing

**60 Discussion Sessions**

**total: 86 h**

---

**1384 accepted contributions**

**710 talks (12 min)**

**674 posters (2 min)**

**total: 142 h**

**total: 23 h**

**pre-recorded** talks, slides, poster  
for offline viewing

**Sum: 280 h**

**All (soon) in our conference archive:**  
**Fully searchable: title, author,**  
**words in abstract, key words**

# **Use this impressive repository to ...**

**Study recorded talks, posters, papers**  
- at your favourite times,  
- on your favourite topic.

**Interact with authors , give feedback.**

**Digest over months to come.**

**Conference Platform will stay available for many months.**

**ICRC 2021 Proceedings**  
**<https://pos.sissa.it/395>**

**Each talk and contribution should have a proceedings article.**  
**(total ~1400 articles on ~12000 pages)**

**permanently available**  
**fully indexed**  
**full author list**

Contributions	8 pages
Highlight talks	16 pages
Review talks	24 pages

# TOOLS USED

**ViMP:** Conference Platform, Archive of materials, Program & Scheduling, Access control, live stream, high bandwidth

**Zoom:** Meetings, webinars, recordings, breakout rooms

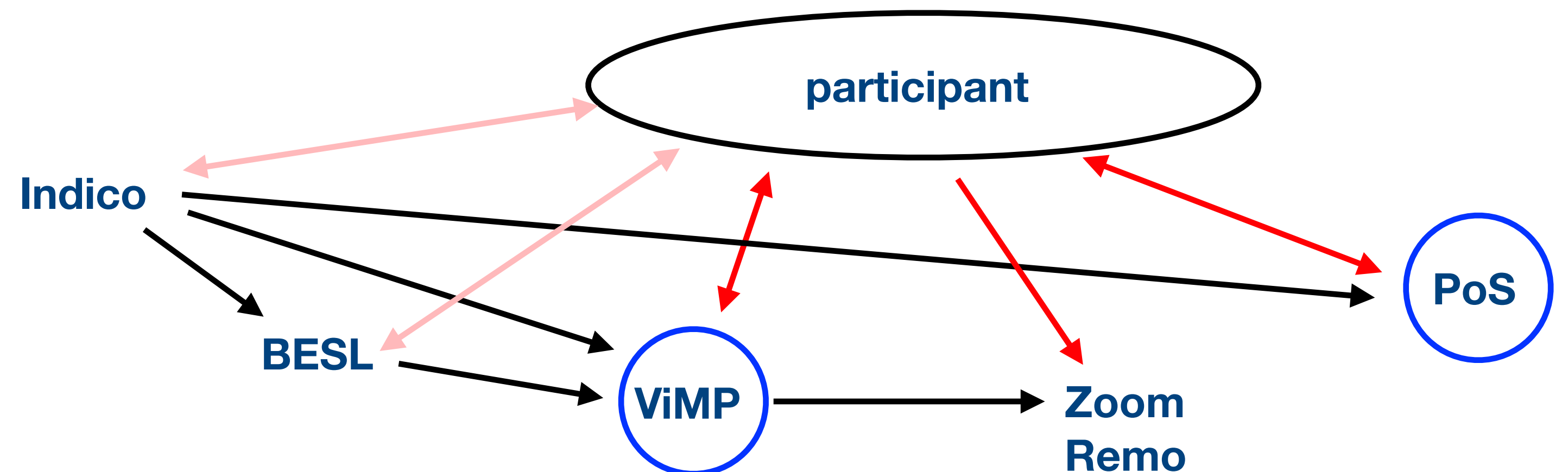
**Remo:** Presenter forum, a virtual Poster session

**Indico:** Pre-registration, abstract submission & assessment,

**PoS:** Proceedings, refereeing

**BESL:** Event agency, registration, participant management, payments

**challenging  
combination**



# NAVIGATE, FIND, SELECT

It's all on the conference platform:

<https://icrc2021-venue.desy.de>

## ICRC 2021

Welcome

Program



Participant List

Networking

Coffee Bars

Careers

Diversity

Sustainability

Exhibition

Public Evening  
Lecture

Explore Berlin

Helpdesk

Search Filter

# ICRC 2021

Welcome

Program >

Participant List

Networking

Coffee Bars

Careers

Diversity

Sustainability

Exhibition

Public Evening  
Lecture

Explore Berlin

Helpdesk

Search Filter

————— Timetable, Timetable at a glance, My Timetable



# ICRC 2021

Welcome

Program



Participant List

Networking

Coffee Bars

Careers

Diversity

Sustainability

Exhibition

Public Evening  
Lecture

Explore Berlin

Helpdesk

Search Filter

participants list (pdf), search participants, participants contributions,  
send personal message

# ICRC 2021

Welcome

Program >

Participant List

Networking

Coffee Bars

Careers

Diversity

Sustainability

Exhibition

Public Evening  
Lecture

Explore Berlin

Helpdesk

Search Filter

personal messages, coffee bars, presenter forum

# ICRC 2021

Welcome

Program >

Participant List

Networking

Coffee Bars

Careers

Diversity

Sustainability

Exhibition

Public Evening  
Lecture

Explore Berlin

Helpdesk

Search Filter

3 coffee bars, 50 breakout rooms each  
Berlin, Physicists, Coffee Specialties

**always open**

# ICRC 2021

Welcome

Program >

Participant List

Networking

Coffee Bars

Careers

———— Writing masterclasses, Speed-date, Job Board

Diversity

———— Interactive Video Project, “Image a Scientist” (film and discussion)

Sustainability

———— 4 talks + panel discussion on: green computing, green experiments, conferences & travel

Exhibition

———— Industry and Science Fairs: exhibits relating to Astroparticle Physics

Public Evening  
Lecture

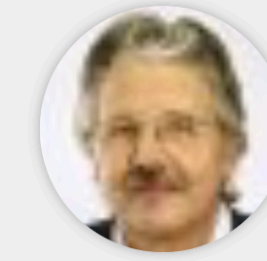
———— VF Hess Lecture: Traditional public evening Lecture during ICRC (in German)

Explore Berlin

———— Online resources and informations on history, life, arts, music, film ... in Berlin/Germany

Helpdesk

Search Filter



Welcome

Program >

Participant List

Networking

Coffee Bars

Careers

Diversity

Sustainability

Exhibition

Public Evening  
Lecture

Explore Berlin

Helpdesk

Search Filter

## Search Results for ""

Basic search

Search Filter

Title

Description

Keywords

Subcategory

Presenter

Typ of contribution

Date and time (Berlin) of ZOOM-Meeting

Presenter-Forum Number

Categories

Search

basic search, search filter

# ACCESS TO MATERIALS AND SESSIONS

... an example

Contributions > Status of the novel CORSIKA 8 air shower simulation framework

## Status of the novel CORSIKA 8 air shower simulation frame...

The slide content includes:

### Environment and Geometry

The region of interest, containing an environment potentially filled with different media is described using a custom geometry set of functionality.

- Simple and efficient geometric primitives representing tracks, volumes, shapes etc.
- Each geometry object can be represented with its own physical properties.
- Easing the exchange of atmospheric models: Earth and Mars atmospheric models already available.
- Environment with mixed media can be transparently handled, e.g. air/ice showers.

At right Blender (<https://www.blender.org/>) scene representing a shower simulated in CORSIKA 8

5/8

☆☆☆☆☆ 15 0 0 5

Download



0 media • uploaded June 26, 2021

Antonio Augusto Alves Junior  
Institute for Astroparticle Physics-KIT

☆☆☆☆☆ 4 0 1 0

rate media

#seen

#comments

#liked

#timetabled

“best contributions” prizes (talks or posters) based on “likes”; do not forget to mark them.

Discussion timeslot (ZOOM-Meeting): 21. July 2021 - 12:00

ZOOM-Meeting URL: <https://desy.zoom.us/j/92210078166>

ZOOM-Meeting ID: 92210078166

ZOOM-Meeting Passcode: ICRC2021

Corresponding Session: <https://icrc2021-venue.desy.de/channel/13-New-Instrumentation-and-Tools-for-EAS-Detection-CRI/92>

Live-Stream URL: <https://icrc2021-venue.desy.de/livestream/Discussion-03/4>

Abstract:

'The simulation program CORSIKA is the leading tool for the research in air shower physics for over 30 years. It is recently undergoing a huge development effort, driven by the migration from FORTRAN77 to modern C++17, in order to achieve the highest performance and functionality, deploying parallelism and engaging different platforms like GPU and many-core CPU, using efficient and multithread-ready techniques. The radio emission framework within CORSIKA 8 is, for example, designed to work in a model-agnostic way which will allow for the first time to in-depth compare all possible emission models.

CORSIKA 8 is also a platform to develop novel algorithmic solutions, e.g. generative networks. A status report and near-term outlook of the project is given. Some ongoing important design choices, like output management and the simulation of showers in different media, are also highlighted and illustrated with an exotic application to cosmic-ray showers in the Martian atmosphere. Moreover, the first examples and comparisons with previously existing codes are presented. The roadmap to a first physics production release is presented.'

Authors: Antonio Augusto Alves Junior

Collaboration: CORSIKA-8

Indico-ID: 1444

Proceeding URL: <https://pos.sissa.it/395/284>

Keywords: none

[Add keywords](#)

Categories: Cosmic Ray Indirect, Scientific Contributions

Date and time (Berlin) of ZOOM-Meeting : 21. July 2021 - 12:00

Subcategory: Experimental-Methods-and-Instrumentation

Presenter: Antonio Augusto Alves Junior

Typ of contribution: Talk

## Additional files

- » [AAAlvesJr\\_CORSIKA8\\_PAPER\\_ICRC2021.pdf](#)
- » [AAAlvesJr\\_CORSIKA8\\_SLIDES\\_ICRC2021.pdf](#)
- » [AAAlvesJr\\_CORSIKA8\\_EXECUTIVE\\_SUMMARY\\_ICRC2021.pdf](#)

[Please, upload your pdfs](#)



# CONTACT, COMMENT

Use **this comment field** underneath each contribution for questions & answers.

not the Zoom chat/Q&A,  
not e-mail

These Q&As **stay visible** with the contributions for others to read.

Authors are notified and should reply within a day.

0 Comments

Every medium you comment on is automatically listed under My Comments.

**Submit comment**

There are no comments yet. Add a comment.

# FRINGE EVENTS

## Fairs:

Industry Fair  
Science Fair

## Careers:

Writing Course  
Job Board \*  
Speed-Date a Recently-Tenured Physicist

## Diversity:

Interactive Video Project \*  
Image a Scientist (movie & Discussion session) \*

**Sustainability in Astroparticle Physics:** Talks and Panel Discussion on  
Green Computing, Green Experiment, Conferences & Travel

## Public Evening lecture:

Abenteuer Astroteilchenphysik- Energiereiche Teilchen aus dem All. W Hofmann, MPIK

## Explore Berlin:

Virtual Exploration of Berlin / Germany

# GET HELP

## ICRC 2021

Welcome

Program >

Participant List

Networking

Coffee Bars

Careers

Diversity

Sustainability

Exhibition

Public Evening  
Lecture

Explore Berlin

Helpdesk

Search Filter



FAQs, e-mail Helpdesk, Zoom Helpdesk



Detailed search



# **End of Part 1**

**on to the**

# **Demonstrations**

**with Lea**

**Thanks for your attention.**

**NOW: 7 July 15:00-16:30**  
**Practice and Use the Helpdesk**

## **REMINDER**

**Tomorrow, Thursday, 8 July, 14:00-16:00**  
**Introducing Remo and the Presenter Forum**

**Now: Conference materials (contributions) are accessible,**  
**Helplines are open**  
**Start browsing and viewing**

**On Monday, 12 July, 13:30-15:30**  
**Official Opening (Welcome addresses, Awards, ...)**