Pre-Opening

7 July 2021

ICRC 2021

THE ASTROPARTICLE PHYSICS CONFERENCE

Berlin | Germany

by
Johannes Knapp
Lea Sophie Preece
DESY

icrc2021.desy.de

WELCOME … to the 37th International Cosmic Ray Conference

Reichstag (Parliament)
Victory Column
TV Tower
Red City Hall
Philharmony
World Trade Center
Brandenburg Gate
Kaiser Wilhelm Memorial Church
Otto Lilienthal's Airplane
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

from **55** countries: **Argentina ... USA**
in timezones from **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 significant increase to previous ICRCs

A BIG CHALLENGE

... for organisers and participants

First time...
online

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?

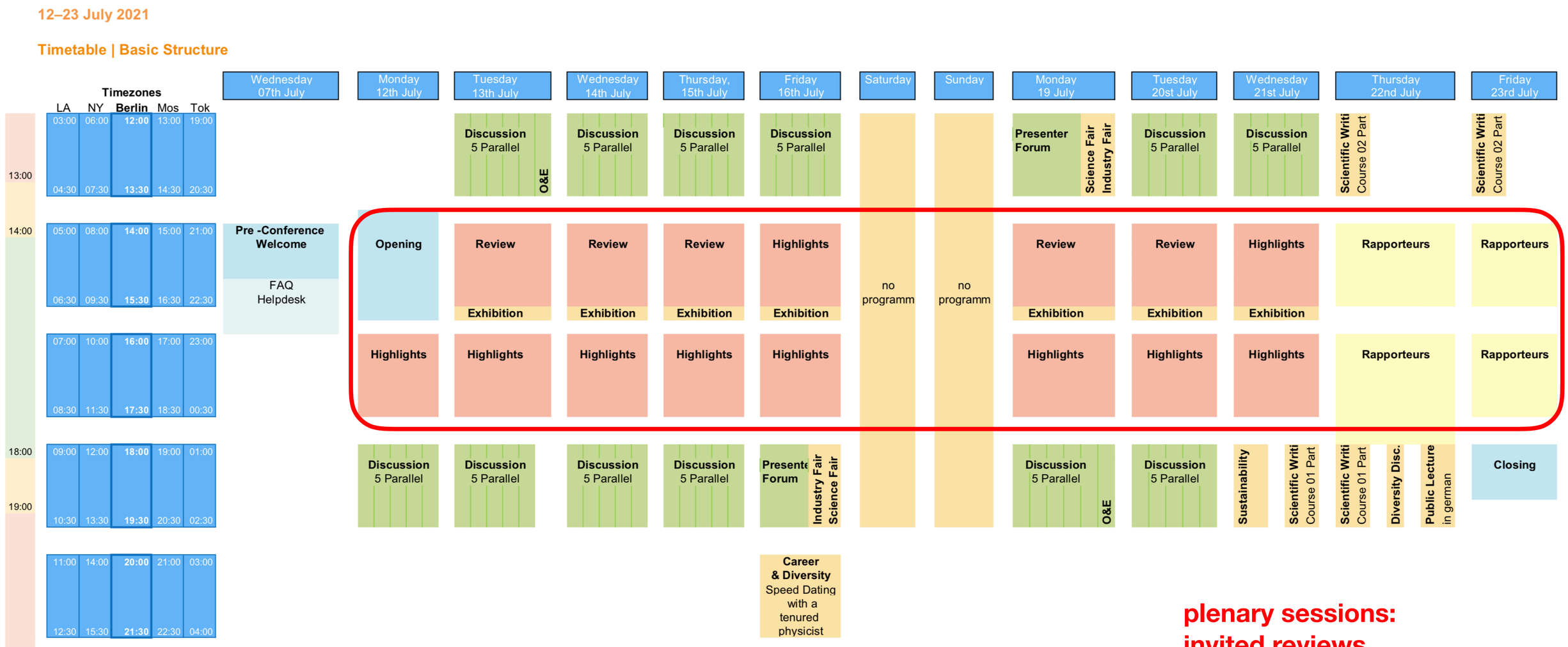
Find, meet, interact with participants? Participants lists, PM in Conf. Platform, presenter forum, coffee bars

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



plenary sessions:
invited reviews
highlight talks
rapporteur talks

STRUCTURE AND COMPONENTS

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5:00 - 9:00 LA time
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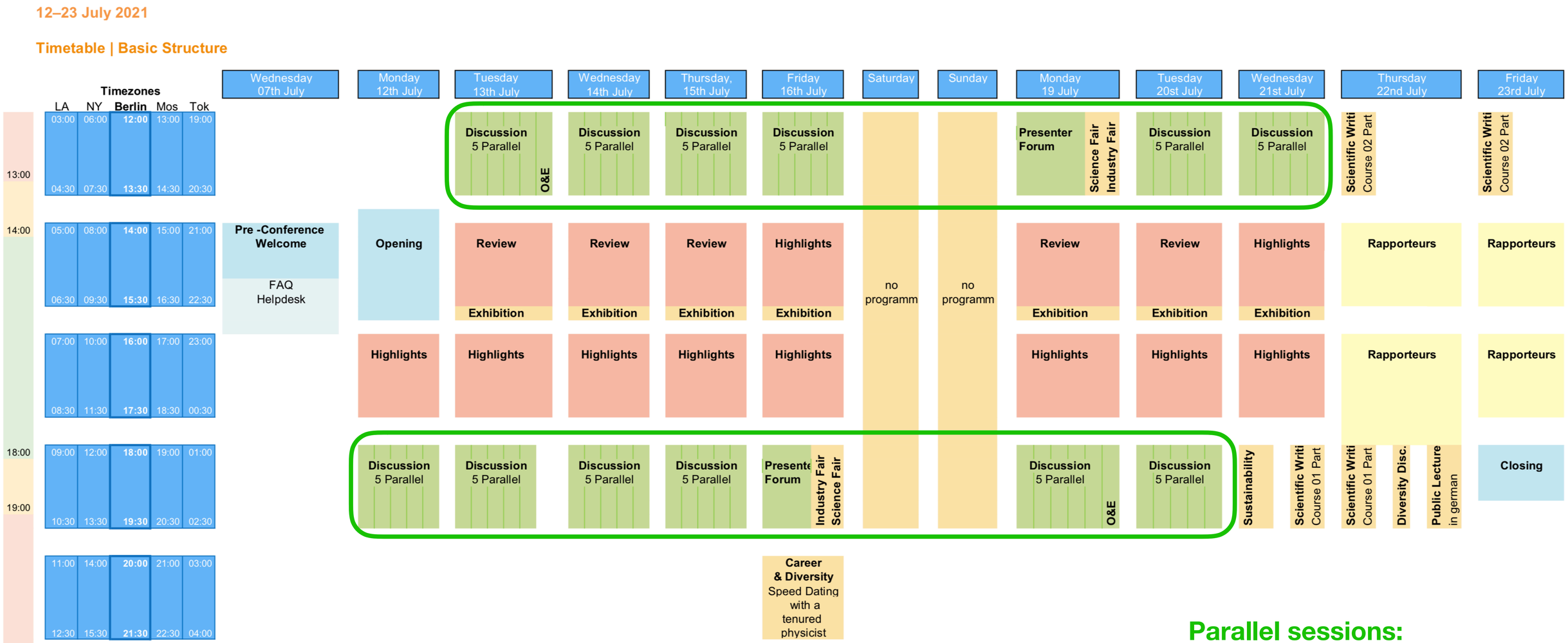
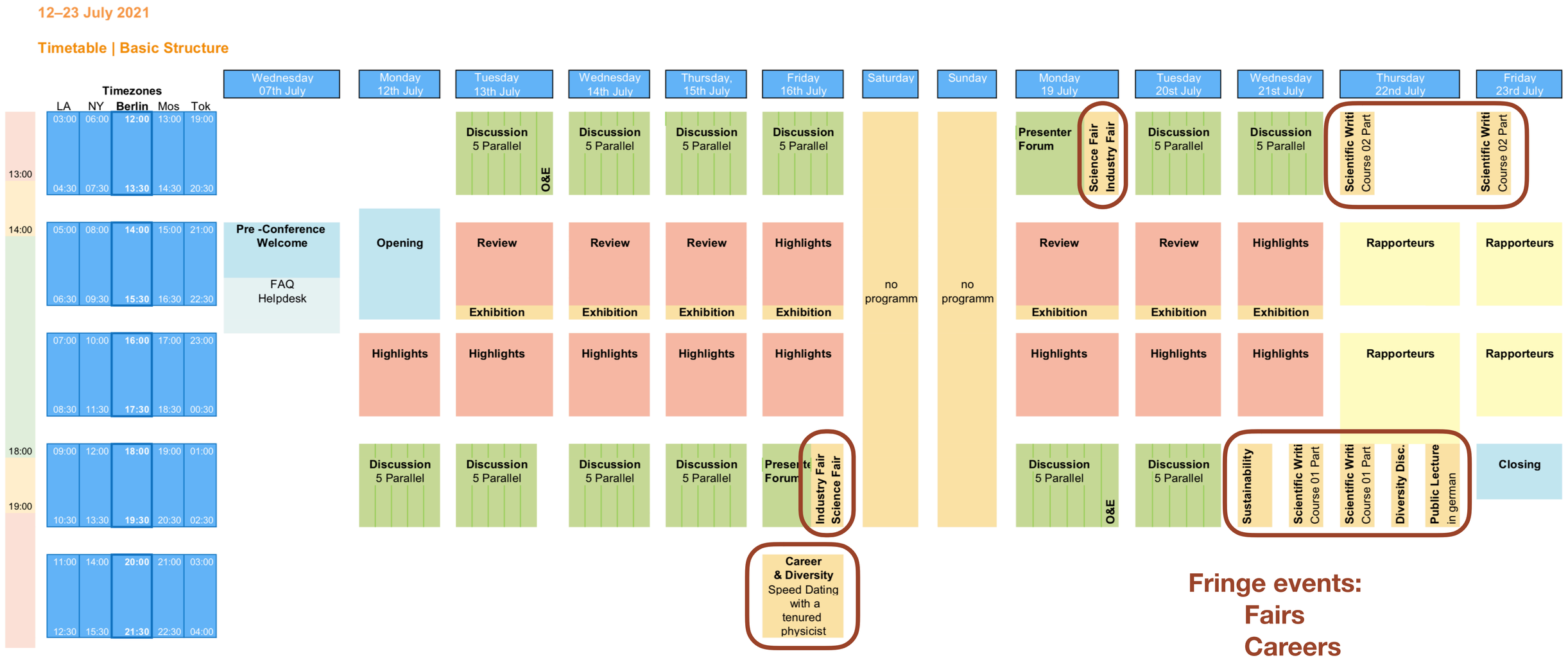


Parallel sessions:
Discussions on physics topics,
Presenter Forum

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



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**

new in 2021

OE **Outreach & Education**

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

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 Ist 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	Kääpä
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
Inclusive outreach events (https://astronomia.udp.cl/category/outreach/)	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
Theatre of Dreams		
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

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

1384 accepted contributions

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

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

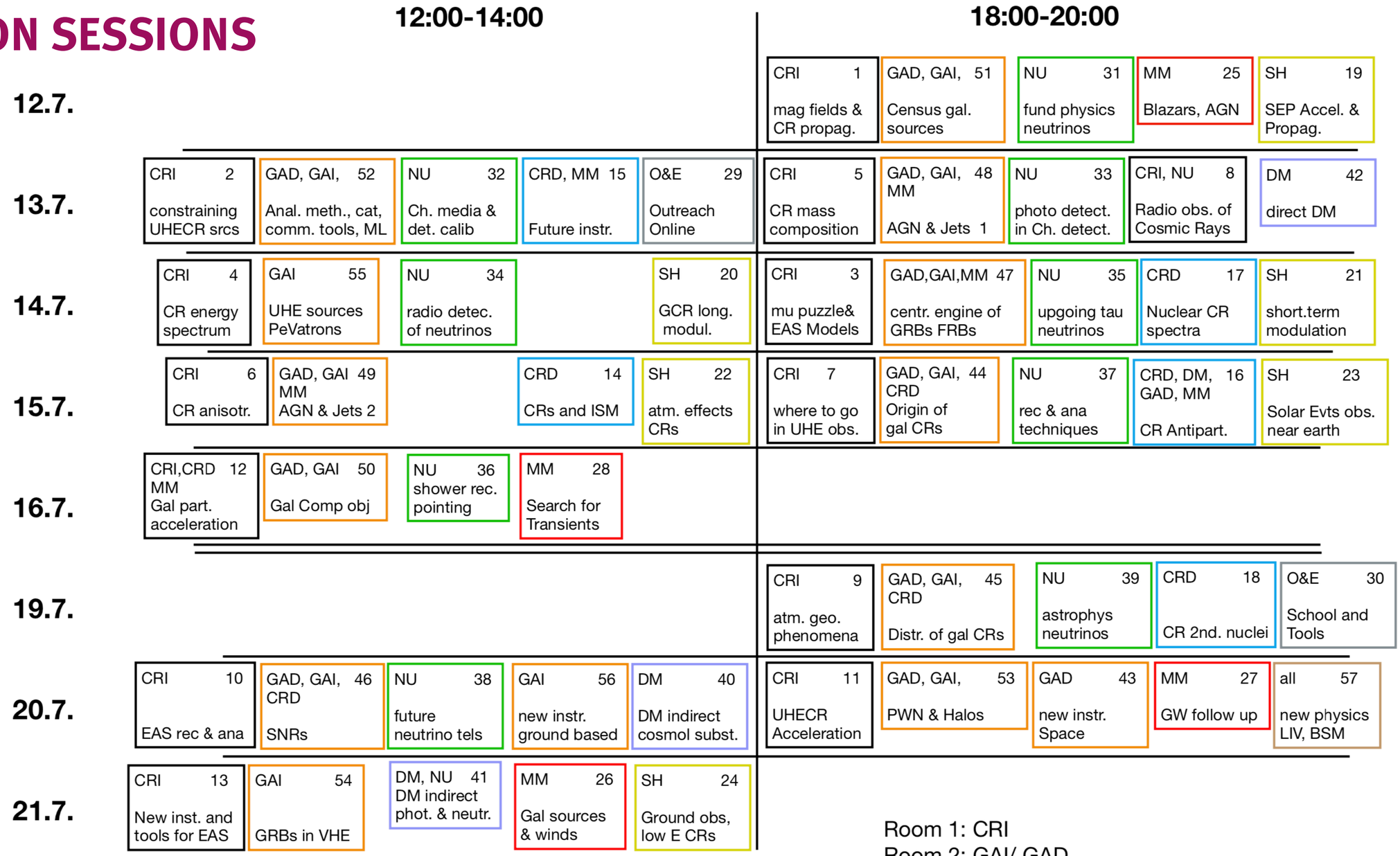
DISCUSSION SESSIONS

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



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

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

with few exceptions

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.

PROCEEDINGS

PROCEEDINGS OF SCIENCE

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

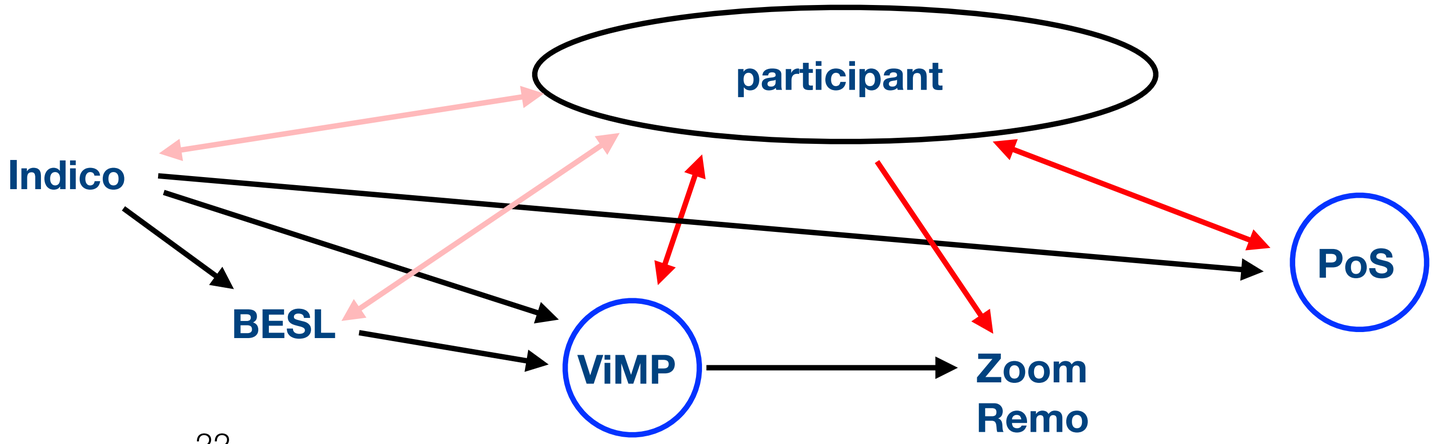
Remo: Presenter forum, a virtual Poster session

Indico: Pre-registration, abstract submission & assessment,

PoS: Proceedings, refereeing

BESL: Event agency, registration, participant management, payments

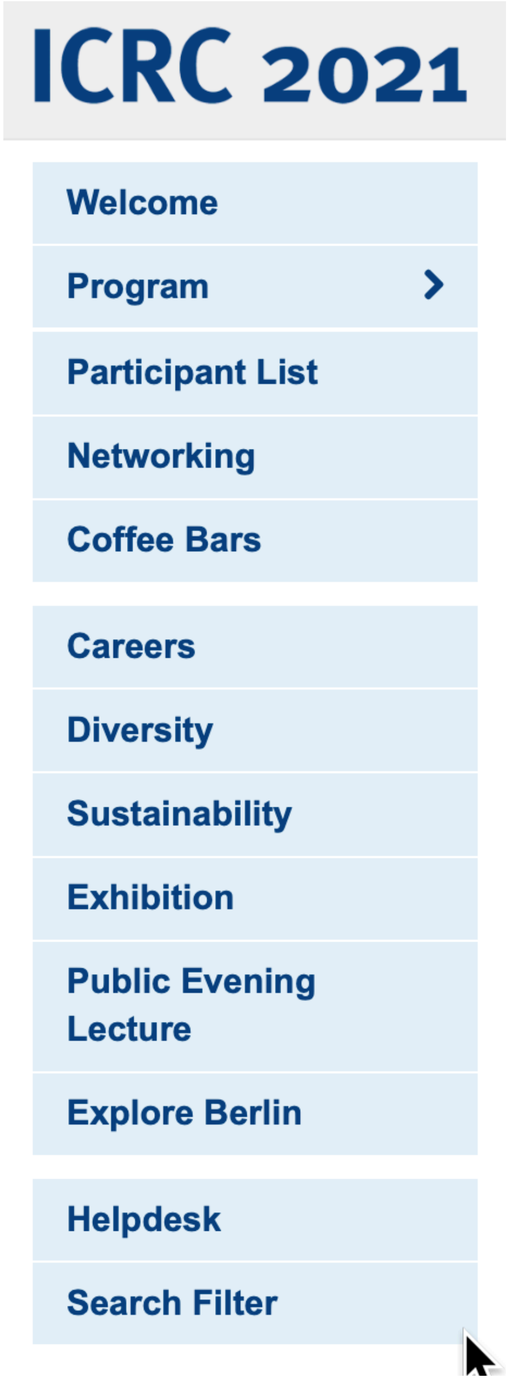
challenging combination



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

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

personal messages, coffee bars, presenter forum

ICRC 2021

- Welcome
- Program >
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- Search Filter

3 coffee bars, 50 breakout rooms each — **always open**

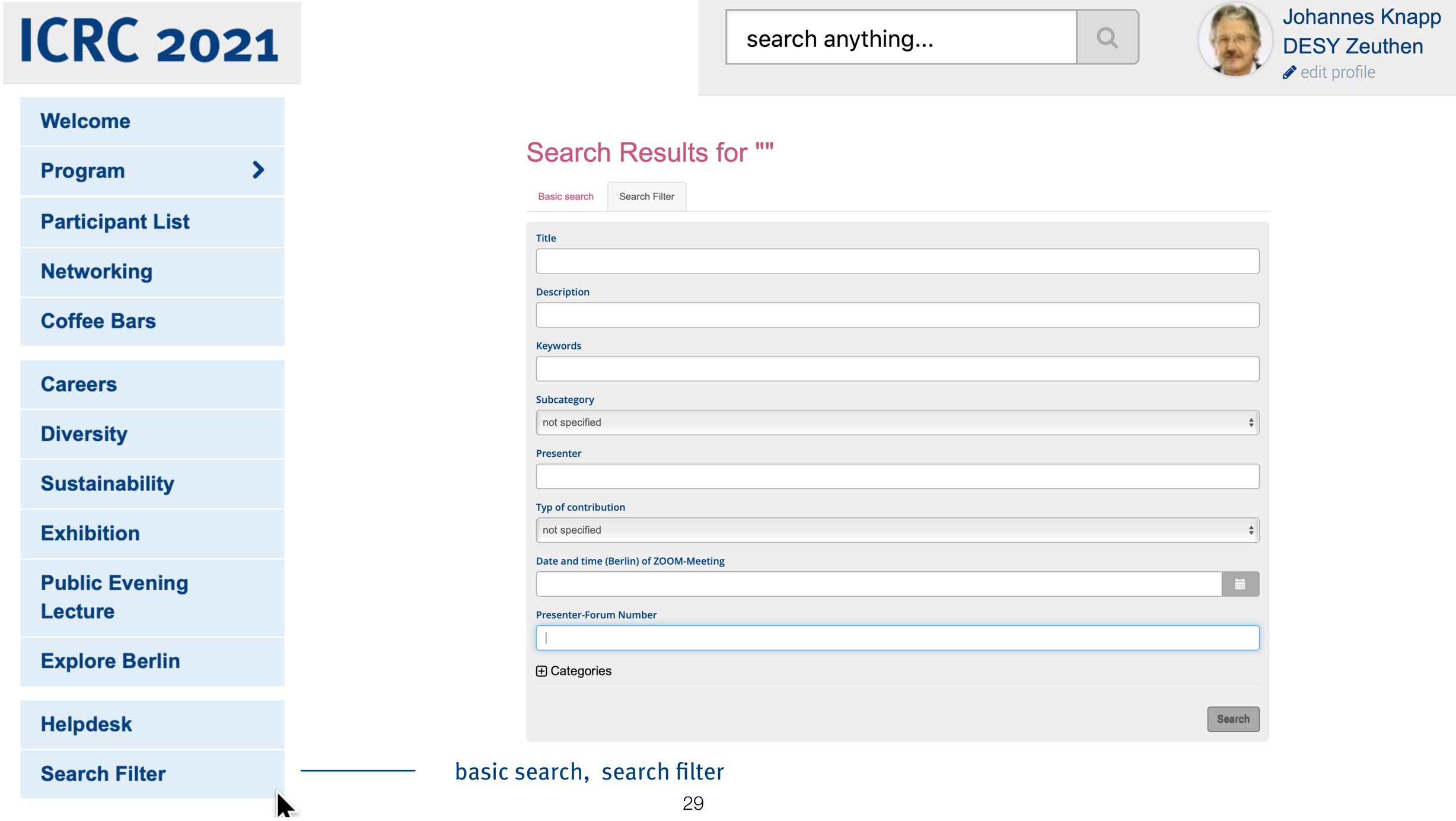
Berlin, Physicists, Coffee Specialties

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



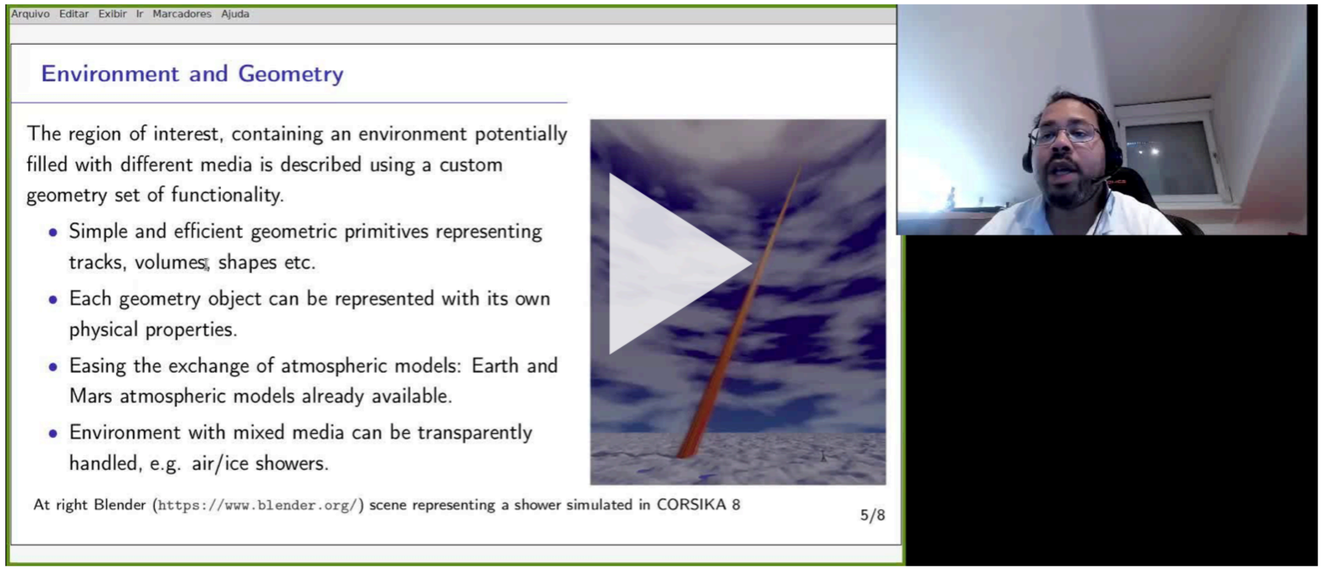
basic search, search filter

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…



☆ ☆ ☆ ☆ ☆ 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

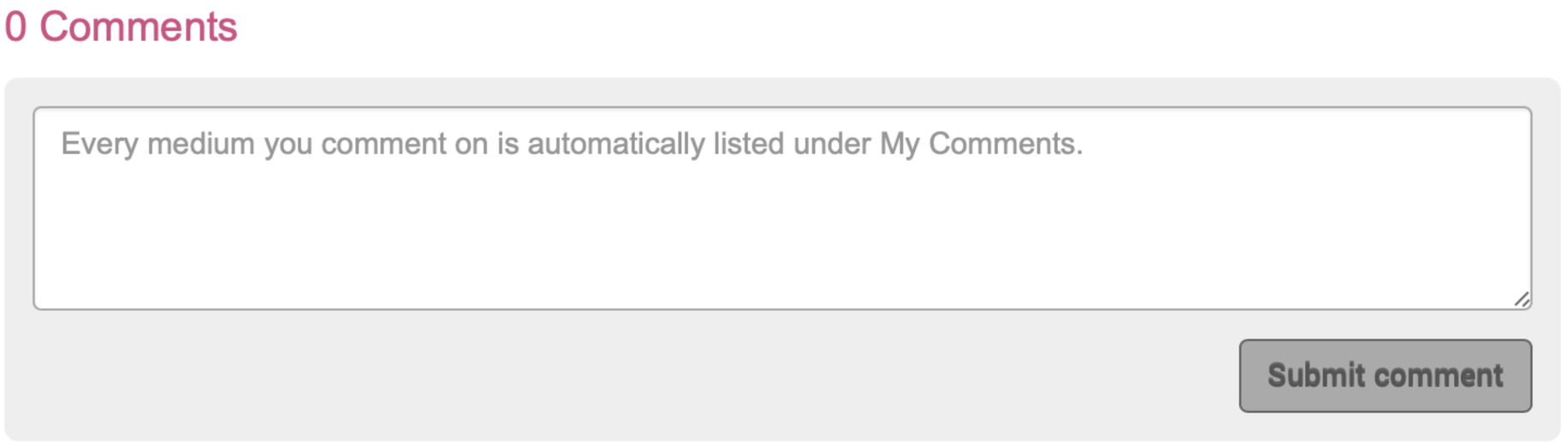
CONTACT, COMMENT

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.



FRINGE EVENTS

Fairs: Industry Fair
Science Fair

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

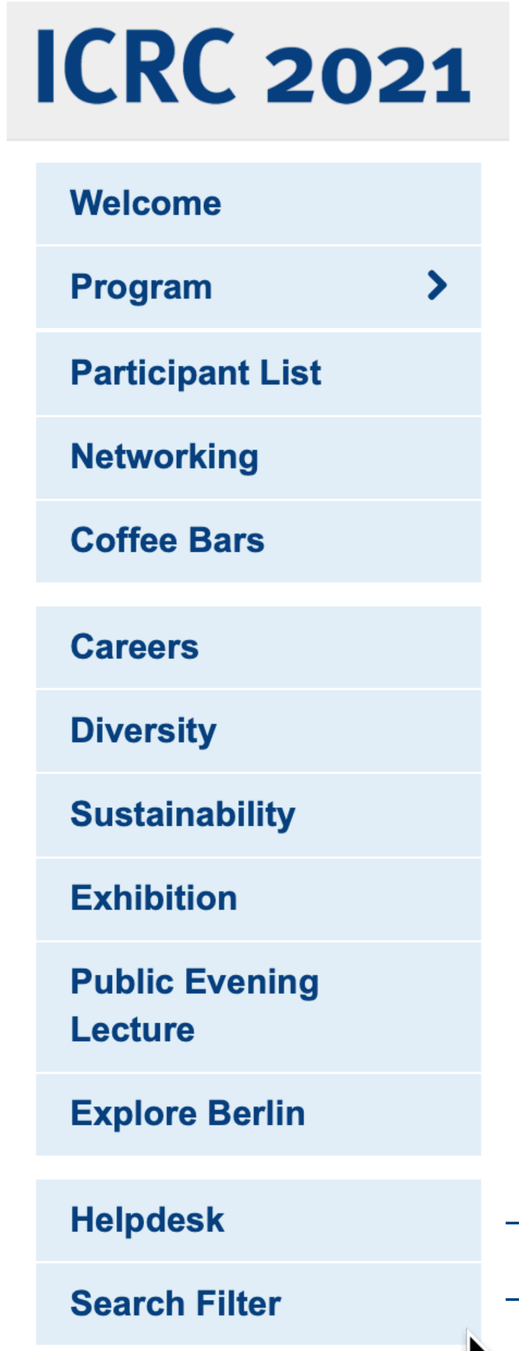
Diversity: Interactive Video Project *
Image a Scientist (movie & Discussion session) *

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



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, …)