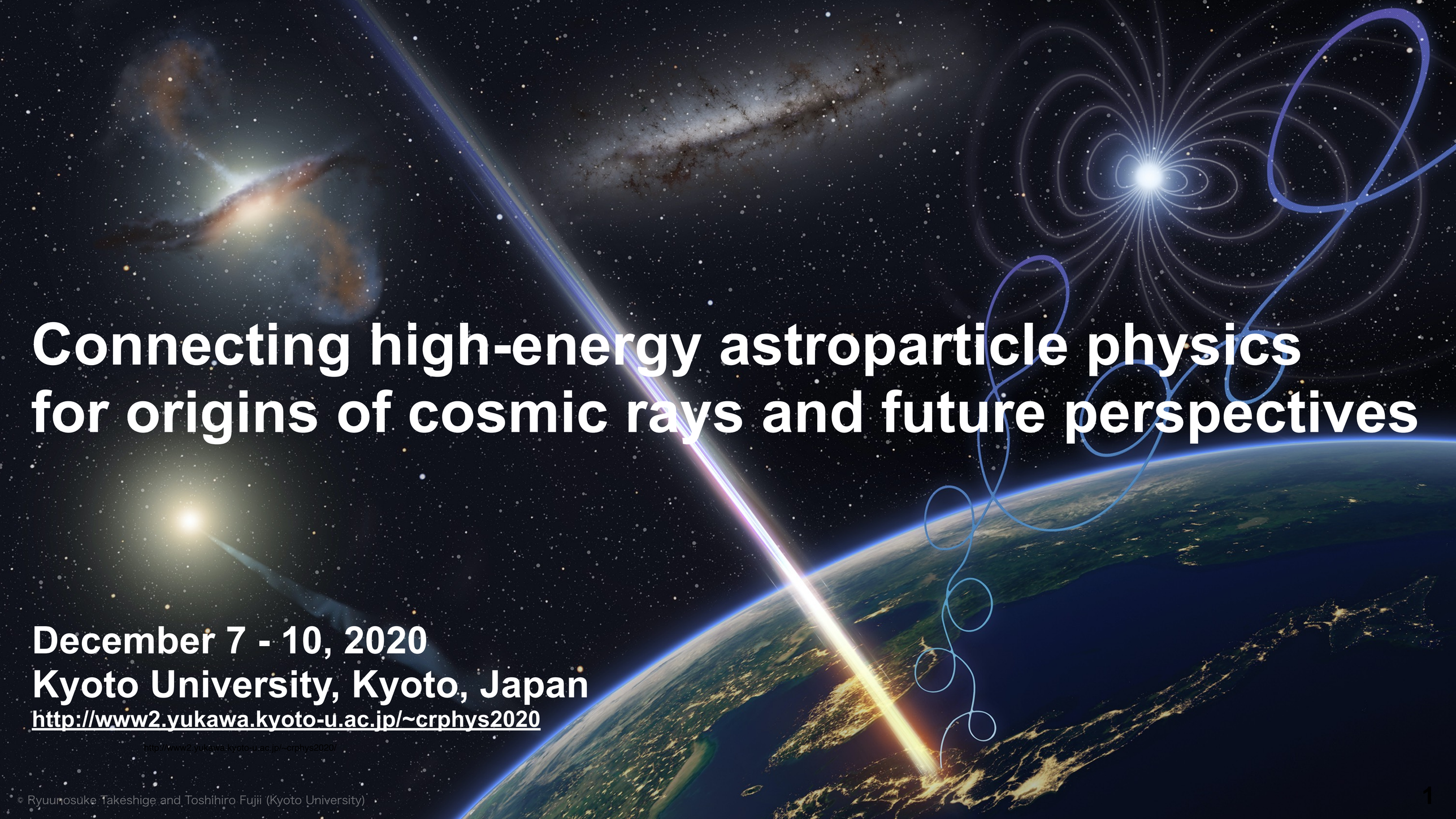


Connecting high-energy astroparticle physics for origins of cosmic rays and future perspectives

December 7 - 10, 2020
Kyoto University, Kyoto, Japan
http://www2.yukawa.kyoto-u.ac.jp/~crphys2020

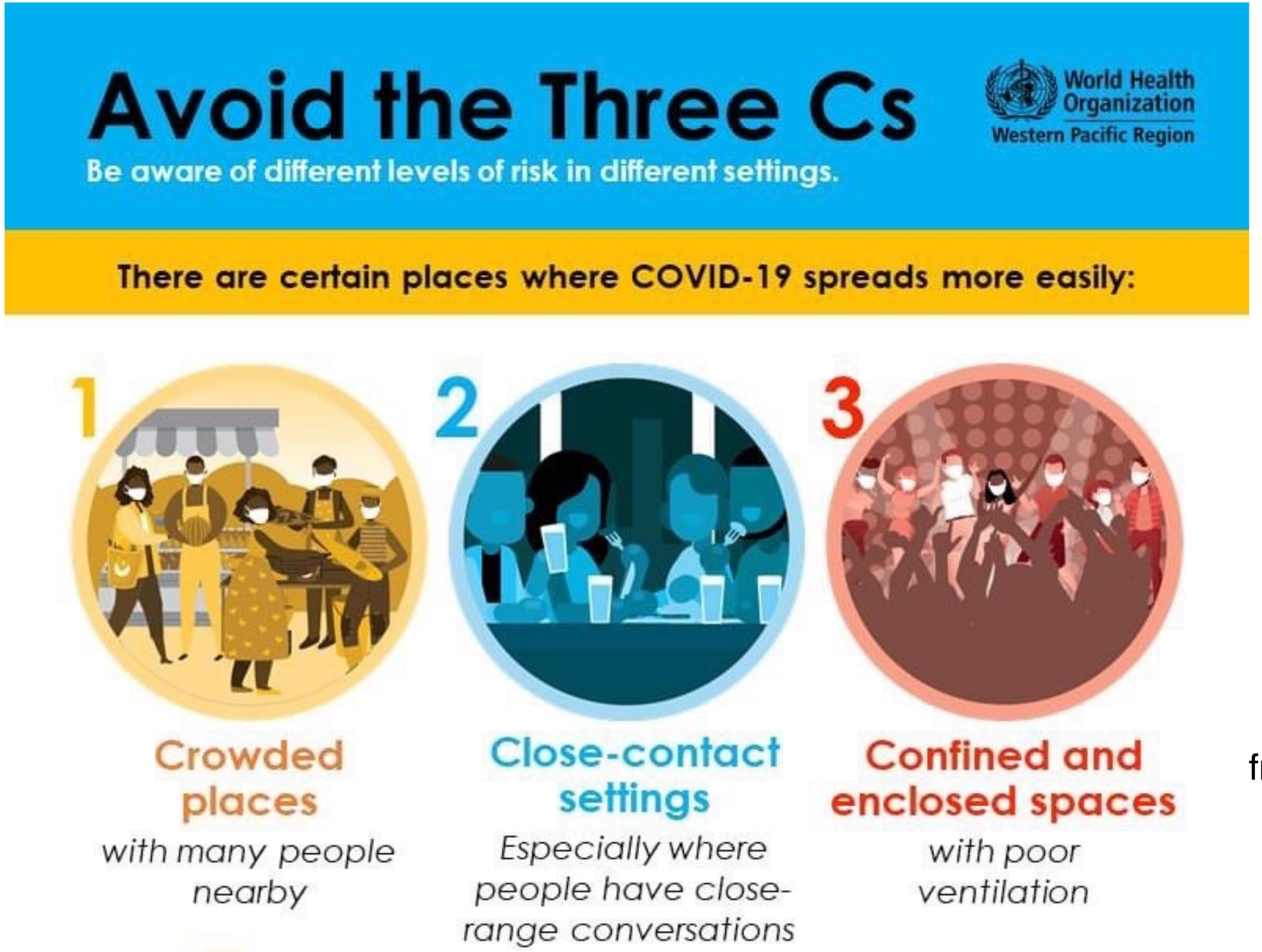
http://www2.yukawa.kyoto-u.ac.jp/~crphys2020/

What should we do in the workshop

from WHO website

- **Masking, Washing and Social distance**
- **If you are unwell, please switch on-line at any time**

What should we do in the workshop



from WHO website

Connecting high-energy astroparticle physics for origins of cosmic rays and future perspectives

December 7 - 10, 2020, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan

Invited talk (25 min + 5 min), Oral contribution (10 min + 5 min), Poster talk (5 min + on-site display)
Time-zone: Japan Standard Time

148 registrations
51 contributions

12/7 (Mon.)

13:00-14:30 Registration

14:30-15:20 Welcome coffee, Opening, Self-introduction (1 min/person) (optional)

15:30-19:00 Session1 — Chairperson: Kohta Murase

- 15:30-16:00 **Kazumasa Kawata** — **100 TeV Gamma-Ray Observation with Extensive Air Shower Arrays**
- 16:00-16:15 Sei Kato — VHE gamma-ray astronomy using the prototype array of a new extensive air-shower-array experiment ALPACA in the southern hemisphere
- 16:15-16:30 Kimura Shigeo — Gamma-ray and neutrino emission from radiatively inefficient accretion flows
- 16:30-17:00 **Foteini Oikonomou** — **High-energy neutrino emission from blazars**

[30 minutes break]

- 17:30-18:00 **Olivier Deligny** — **The UHECR science after 15 years of operation of the Pierre Auger Observatory**
- 18:00-18:30 **Yana Zhezher** — **Overview of the Telescope Array experiment**
- 18:30-19:00 **Anatoli Fedynitch** — **Hadronic interactions in cosmic ray physics**

12/8 (Tue.)

09:00-12:30 Session2 — Chairperson: Aya Ishihara

- 09:00-09:30 **Takatomi Yano** — **Neutrino astrophysics prospect at Super-Kamiokande and Hyper-Kamiokande**
- 09:30-10:00 **Ignacio Taboada** — **Recent Astrophysical results of IceCube**
- 10:00-10:30 **Stephanie Wissel** — **Radio detection of ultrahigh-energy neutrinos: present and future**

[30 minutes break]

- 11:00-11:30 **Nepomuk Otte** — **Trinity: An Air-Shower Imaging Instrument to detect Ultrahigh-Energy Neutrinos**
- 11:30-12:00 **Ruoyu Liu** — **The Giant Radio Array for Neutrino Detection**
- 12:00-12:15 Mahdi Bagheri — The UHE-Neutrino Cherenkov telescope onboard EUSO-SPB2
- 12:15-12:30 Susumu Inoue — High-energy neutrino and gamma-ray emission from AGN-driven winds

14:30 - 15:00 Poster session (5 min / person) and coffee, Chairperson: Wataru Ishizaki

- Satoshi Takashima — GRAMS project: A MeV gamma-ray large area telescope using liquid argon and its concept study
- Susumu Inoue — The Blazar Hadronic Code Comparison Project
- Ken Matsuno — Particle acceleration by ion-acoustic solitons in plasma in a magnetic field
- Ken Ohashi — Effects of diffractive collisions on predictions of the number of muons in the air shower
- Tomohiko Oka — The time-evolution measurement of a diffusive shock acceleration using supernova remnants and local molecular clouds

15:30-19:15 Session3 — Chairperson: Hiroaki Menjo

- 15:30-16:00 **Teruaki Enoto** — **High-Energy Atmospheric Physics of Lightning and Thunderstorms Observed along the Sea of Japan**
- 16:00-16:30 **Markus Alhers** — **Cosmic-Ray Anisotropy**
- 16:30-17:00 **Roberta Colalillo** — **The Pierre Auger Observatory and the study of atmospheric electricity phenomena**

[30 minutes break]

- 17:30-18:00 **Ioana Maris** — **Future Detectors for Measuring Ultra High Energy Cosmic Rays from the Ground**
- 18:00-18:30 **Maria Petropoulou** — **Blazar neutrinos: implications of recent IceCube observations**
- 18:30-19:00 **Walter Winter** — **Gamma-ray bursts and tidal disruption events as the sources of UHECRs and neutrinos**
- 19:00-19:15 Norita Kawanaka — Origin of Spectral Hardening of Secondary Cosmic-Ray Nuclei

12/9 (Wed.)

09:00-12:10 Session4 — Chairperson: Kunihito Ioka

- 09:00-09:30 **Yoshihiro Ueda** — **The origin of the cosmic X-ray background**
- 09:30-10:00 **Yoshiyuki Inoue** — **Future Prospects of MeV Gamma-ray Astronomy**
- 10:00-10:30 **Keith Bechtol** — **Using optical surveys to explore the origin of cosmic rays**

[25 minutes break]

- 10:55-11:25 **Andreas Zoglauer** — **Future missions in the MeV domain: COSI & AMEGO**
- 11:25-11:55 **Atsushi Takada** — **MeV gamma-ray observations utilizing electron-tracking Compton cameras loaded on balloons**
- 11:55-12:10 Nagisa Hiroshima — Dark matter search in extended dwarf spheroidal galaxies with CTA

14:30 - 15:00 Poster session (5 min /person) and coffee, Chairperson: Wataru Ishizaki

- Yutaka Fujita — Intrusion of Cosmic-Rays into Molecular Clouds Studied by Ionization, the Neutral Iron Line, and Gamma-Rays
- Yugo Omura — NICHE detector and analysis results
- Ryo Sawada — A Consistent Modeling of Neutrino-driven Wind with Accretion Flow onto a Protoneutron Star and its Implications for 56Ni Production
- Kenta Terauchi — The Fluorescence detector Array of Single-pixel Telescopes: The next-generation cosmic ray observatory

15:30 - 19:00 Session5 — Chairperson: Yudai Suwa

- 15:30-16:00 **Yutaka Ohira** — **Cosmic-ray acceleration in supernova remnants**
- 16:00-16:15 Naomi Tsuji — Systematic study of acceleration efficiency in young supernova remnants
- 16:15-16:30 Hiromasa Suzuki — Observational gamma-ray and X-ray study on cosmic-ray escape from supernova remnants
- 16:30-16:45 Tomoaki Kasuga — cipher: a CubeSat-Based Hard X-ray Imaging Polarimetry Mission

[30 minutes break]

- 17:15-17:45 **Kumiko Kotera** — **Pulsars and magnetars as high-energy cosmic particle sources**
- 17:45-18:15 **Andrew Taylor** — **Particles Acceleration in the Jets of Centaurus A**
- 18:15-18:30 Merten Lukas — Ultra-high Energy Cosmic Rays Acceleration in FR 0 Radio Galaxies
- 18:30-19:00 **Yoshiyuki Takizawa** — **Observation of ultra high energy cosmic rays from space (K-EUSO and POEMMA)**

12/10 (Thu.)

09:00-12:45 Session6 — Chairperson: Tsuyoshi Nakaya

- 09:00-09:30 **Kazumi Kashiyama** — **Fast Radio Bursts: A Mystery Being Solved?**
- 09:30-09:45 Lin Haoxiang — Afterglows of neutron star mergers and fast radio bursts
- 09:45-10:15 **Imre Bartos** — **Compact object mergers as high-energy multi-messenger sources**
- 10:15-10:30 Shuta Tanaka — Stochastic acceleration model of very young pulsar wind nebula associated with SN 1986J

[30 minutes break]

- 11:00-11:30 **Ke Fang** — **High-energy Cosmic Particles by Black-hole Jets in Galaxy Clusters**
- 11:30-12:00 **Ali Kheirandish** — **High-Energy Neutrinos as Probes of New Physics**
- 12:00-12:15 Ryo Higuchi — Effects of Galactic magnetic field on the UHECR anisotropy studies
- 12:15-12:30 On Alvina Yee Lian — Diagnosing the invisible: cosmic magnetism and the radio sky
- 12:30-12:45 Takahiro Sudoh — Millisecond Pulsars Modify the Radio-SFR Correlation

14:30 - 16:00 Summary — Chairperson: Toshihiro Fujii

- 14:30-15:30 Overview Discussion and Summary
- 15:30-16:00 Workshop Photo and Closing

Workshop photo!!

What should we do in the workshop

- **To unentangle origins of cosmic rays**
  - **Connect multi-wavelength and multi-particle observations**
  - **Connect active theorists and experimentalists**
- **Coffee break**
  - [on-line]
    - we will try "**breakout room**" with a **random allocation** of on-line participants (~8 persons / room)
  - [on-site]
    - please remember **masking and social distance**
    - please eat sweets **only outside of YITP building**
    - **Only water** acceptable in the Panasonic hall and Y206 (poster room)
    - **Only drink** acceptable in Y105 (at front of Panasonic hall)
      - Please understand any epidemic possibilities on your own responsibility

Trash


Others
Pet bottles
CANS
画面左のメニューをタッチして下さい。
This is the Touch Panel Monitor.
Please touch the menu on the left.
一般ゴミ
Others
ゴミ箱
ペットボトル
PET BOTTLES
CAN
缶
CANS
garbage
45L

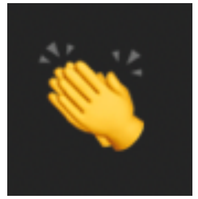
Workshop location

vending machine

To contributors and audiences

- **Please keep on time**
  - Invited talk (25 min + 5 min)
  - Oral (10 min + 5 min)
  - Poster (5 min + on-site display)
    - If possible, please activate your video during your talk
- **[Both] Join Zoom and share your screen**

- [Onsite] Please **be seated with a social distance**
- [Online] Please "**clap**" via reactions



nature
International journal of science

CORRESPONDENCE · 26 SEPTEMBER 2018

Do boring speakers really talk for longer?

Robert M. Ewers

2.5σ (in tension)

Dull talks at conferences can feel interminable. Or could it be that they really do go on for longer?

I investigated this idea at a meeting where speakers were given 12-minute slots. I sat in on 50 talks for which I recorded the start and end time. I decided whether the talk was boring after 4 minutes, long before it became apparent whether the speaker would run overtime. The 34 interesting talks lasted, on average, a punctual 11 minutes and 42 seconds. The 16 boring ones dragged on for 13 minutes and 12 seconds (thereby wasting a statistically significant 1.5 min; t-test, $t = 2.91$, $P = 0.007$). For every 70 seconds that a speaker droned on, the odds that their talk had been boring doubled. For the audience, this is exciting news. Boring talks that seem interminable actually do go on for longer.

To avoid banality, speakers should introduce their objectives early on and focus on pertinent information. They should avoid trite explanations, repetition, getting bogged down by irrelevant minutiae and passing off common knowledge as fresh insight.

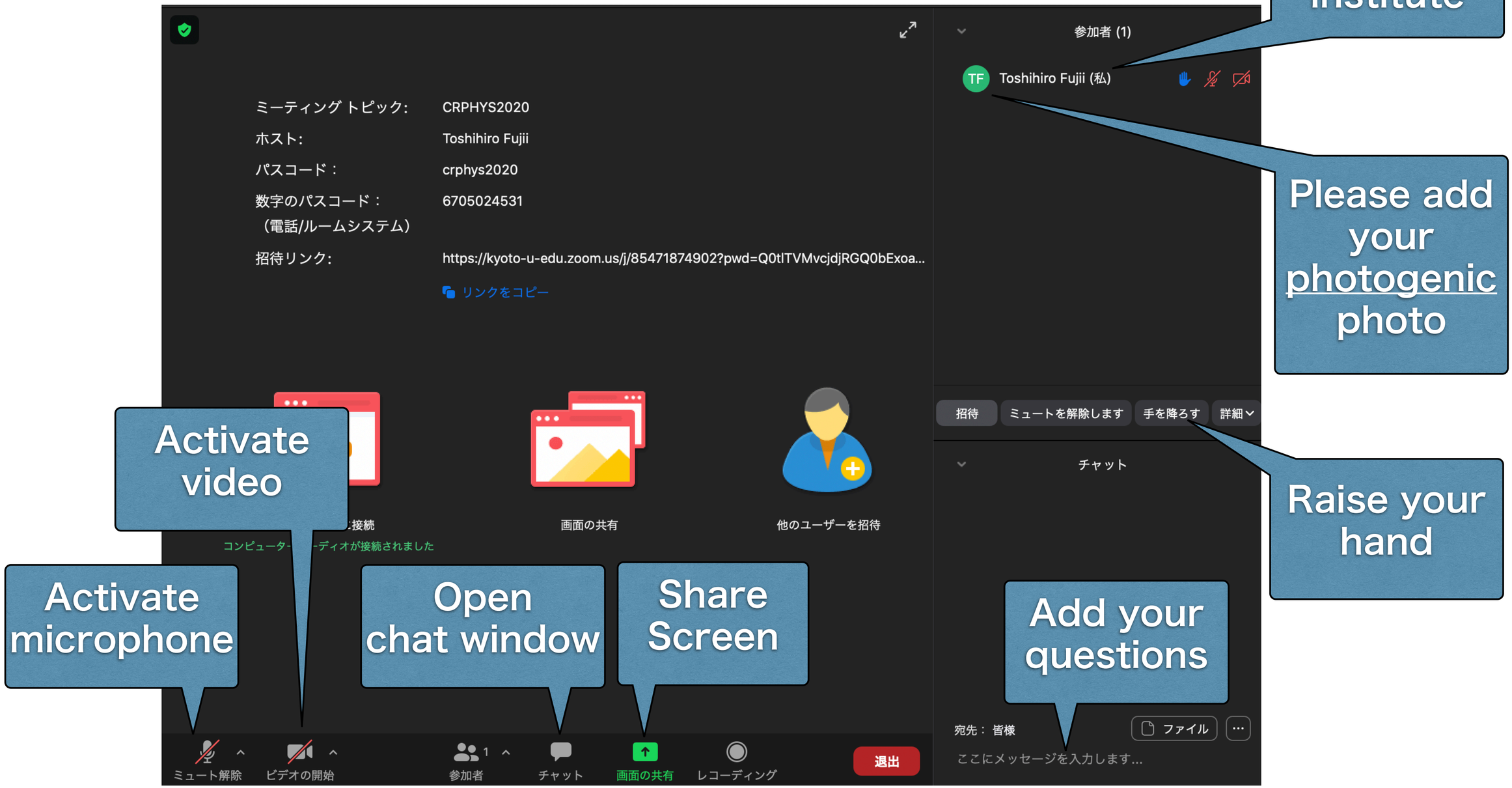
Nature **561**, 464 (2018)

Question and discussion

- During talk,
  - [Both] please use the chat window of Zoom
    - Short question acceptable

- After talk,
  - [Online] Please **raise your hand by Zoom**, and wait for call from chairperson
  - [Onsite] Please **step to microphone stand,** and wait for call from chairperson
- Please take over additional questions and discussions via **Slack**

Zoom tips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Please add your photogenic photo
Raise your hand
Add your questions
Activate video
Activate microphone
Open chat window
Share Screen
ミーティング トピック: CRPHYS2020
ホスト: Toshihiro Fujii
パスコード： crphys2020
数字のパスコード： 6705024531
（電話/ルームシステム）
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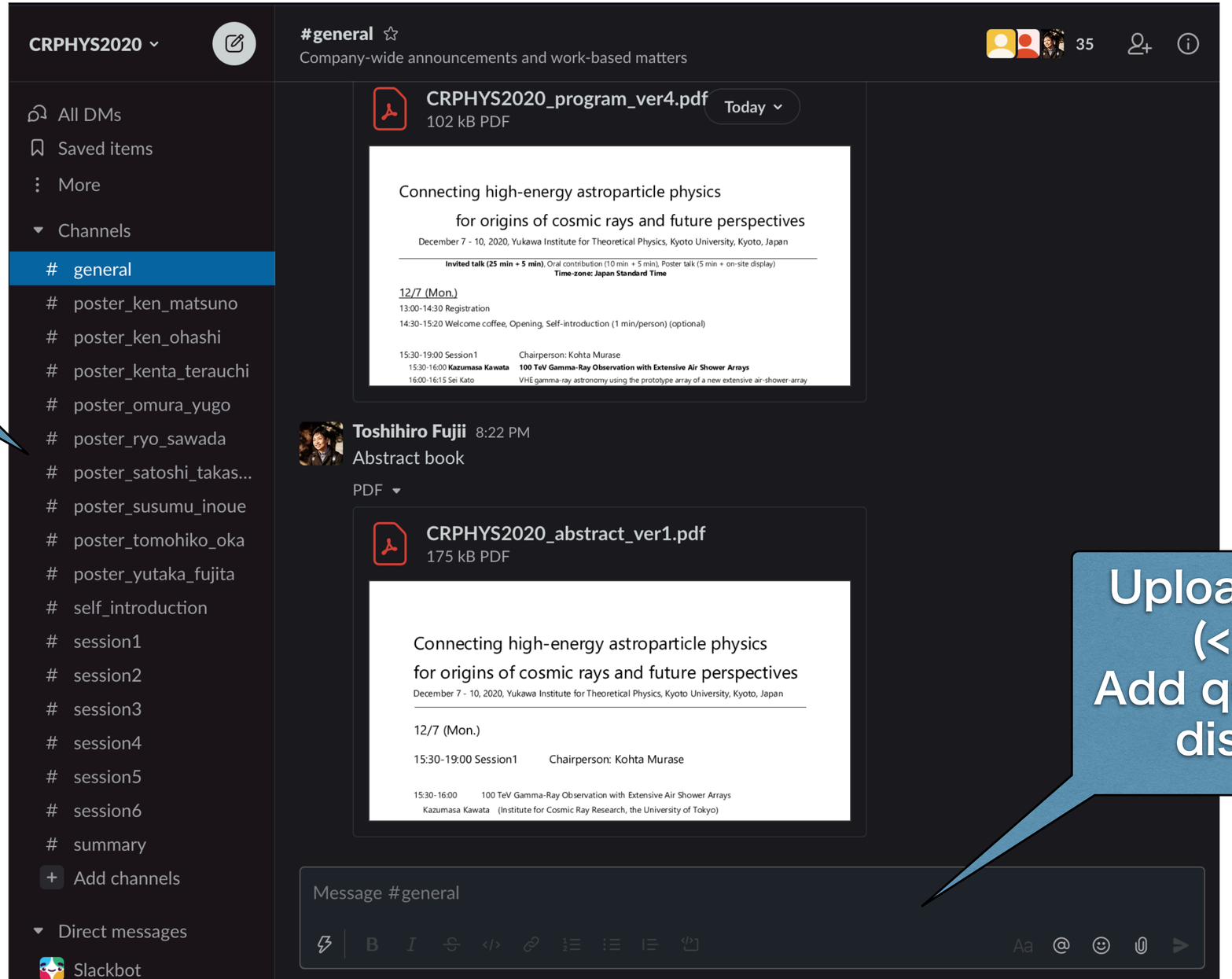
画面の共有
他のユーザーを招待
参加者 (1)
TF Toshihiro Fujii (私)
招待
ミュートを解除します
手を降ろす
詳細
チャット
宛先： 皆様
ファイル
ここにメッセージを入力します...
ミュート解除
ビデオの開始
参加者
チャット
画面の共有
レコーディング
退出

Join Slack

- Login Slack from the invitation link
  - **LINK: participants only**
  - Unlimited discussion during workshop
    - English or Japanese（日本語）
- The important discussions will be addressed in the Summary session
- **Please upload your slide via Slack** (after removing your confidential slides)
  - Please compress your PDF **below 100 MB**
    - Alternatively, just send slide by an email to crphys2020@yukawa.kyoto-u.ac.jp
      - The slides will be shared among participants

Slack tips

Channels for sessions and posters



Upload your slide (<100 MB)
Add questions and discussions

To invited speakers

- Please describe your personal opinion at your final slide
  - **What's your targeted physics in next decades?**
  - **What we need to accomplish?**
  - and take-home messages (optional)

For poster contributors

- Please upload your poster in **Slack**
- The poster room is Y206 at the second floor, please attach your poster
- Please login Slack and check any comments and questions in your own channel (# poster_your_name)

Connecting multi-wavelength and multi-particle observations for Cosmic Ray Ground Unified Theory (CR-GUT)

X-ray MeV GeV - TeV

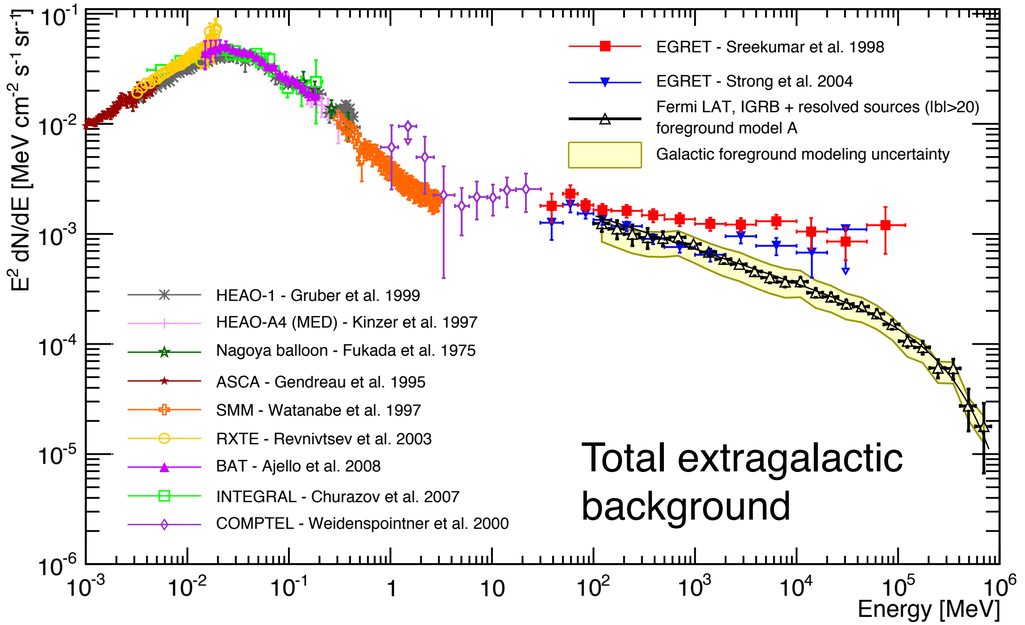
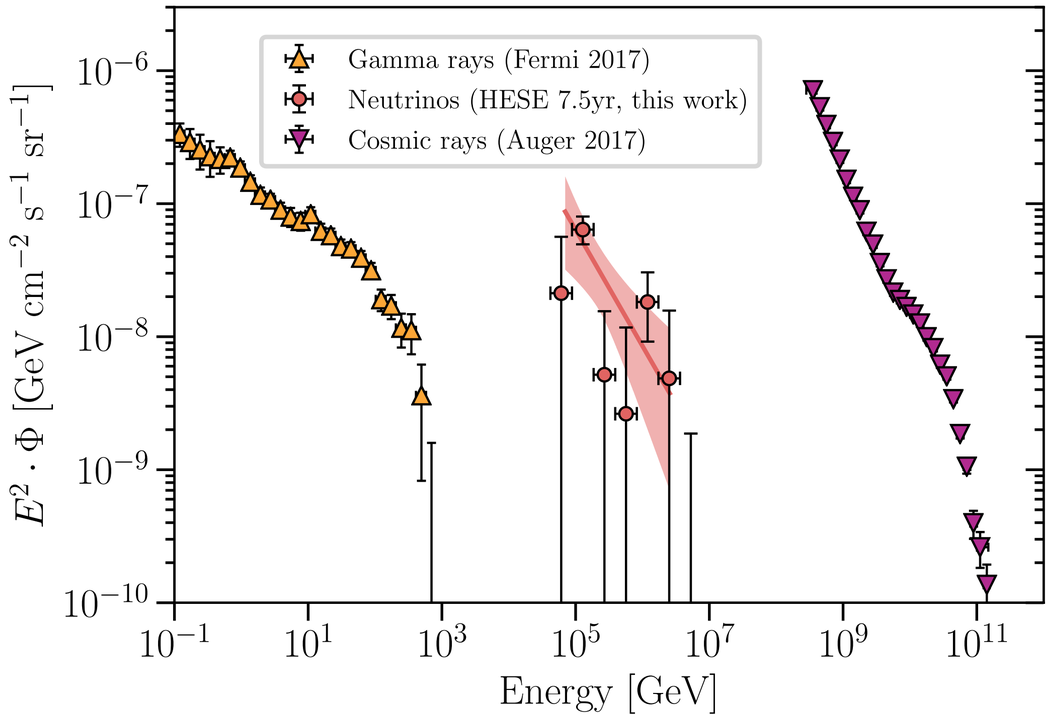


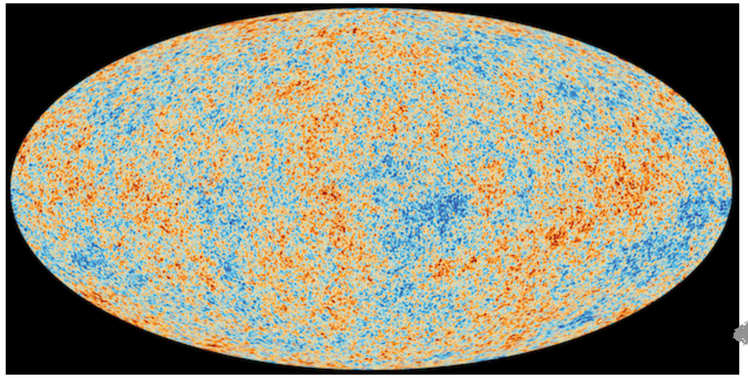
Fig. 10.— Comparison of the derived total EGB intensity (foreground model A) to other measurements of the X-ray and γ-ray background. The error bars on the LAT measurement include the statistical uncertainty and systematic uncertainties from the effective area parametrization, as well as the CR background subtraction. Statistical and systematic uncertainties have been added in quadrature. The shaded band indicates the systematic uncertainty arising from uncertainties in the Galactic foreground. (Note that the EGRET measurements shown are measurements of the IGRB. However, EGRET was more than an order of magnitude less sensitive to resolve individual sources on the sky than the *Fermi*-LAT.)

Fermi-LAT collaboration, Astrophys.J. 799 (2015) 86

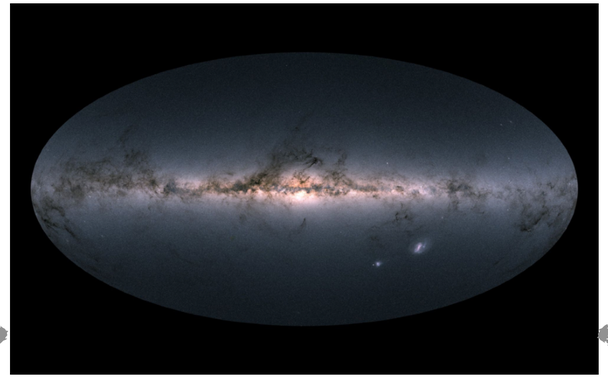
γ-rays neutrinos UHECRs



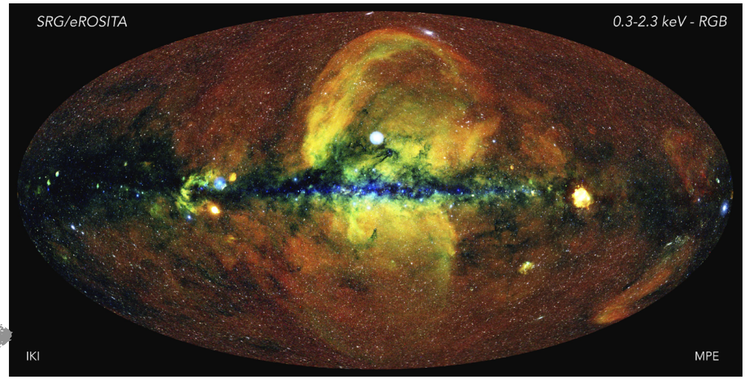
IceCube Collaboration, arXiv:2011.03545



Planck Collaboration

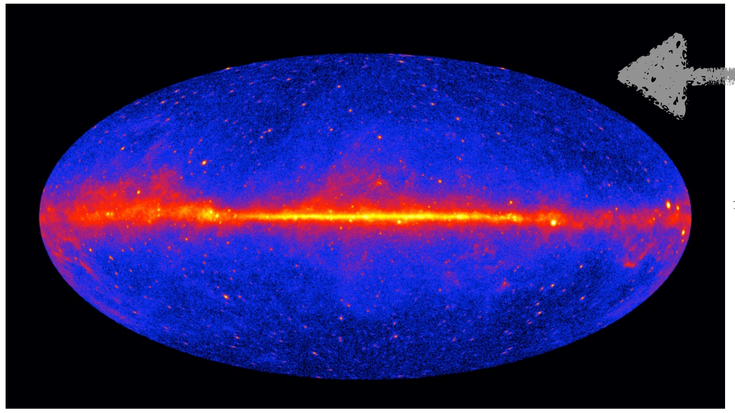


GAIA Collaboration

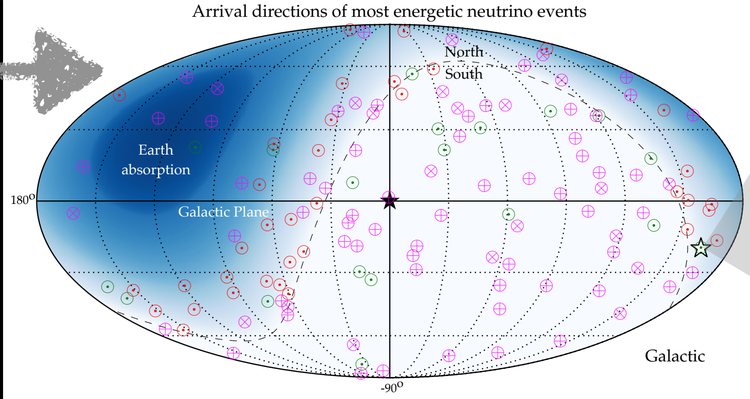


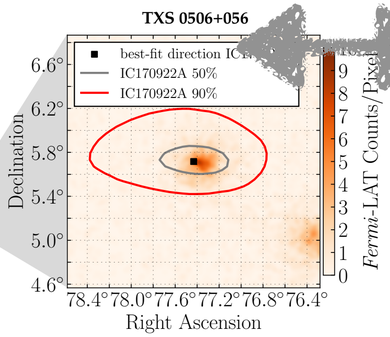
eROSITA Collaboration

Cosmic Ray Ground Unified Theory (CR-GUT)

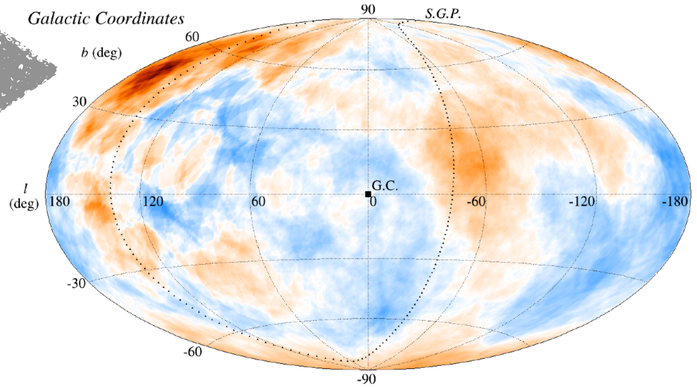


Fermi Collaboration



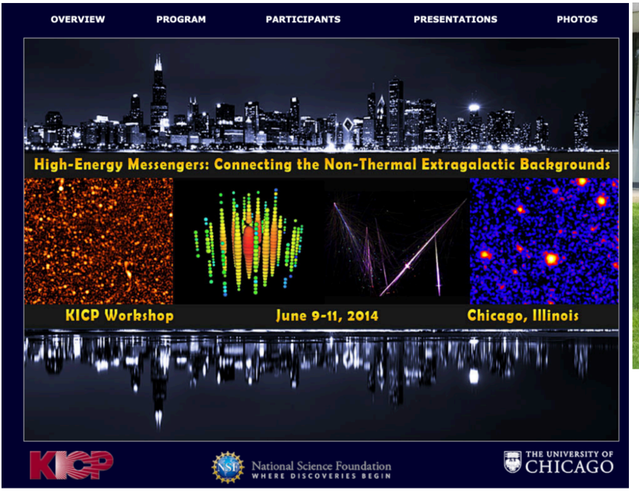


IceCube Collaboration



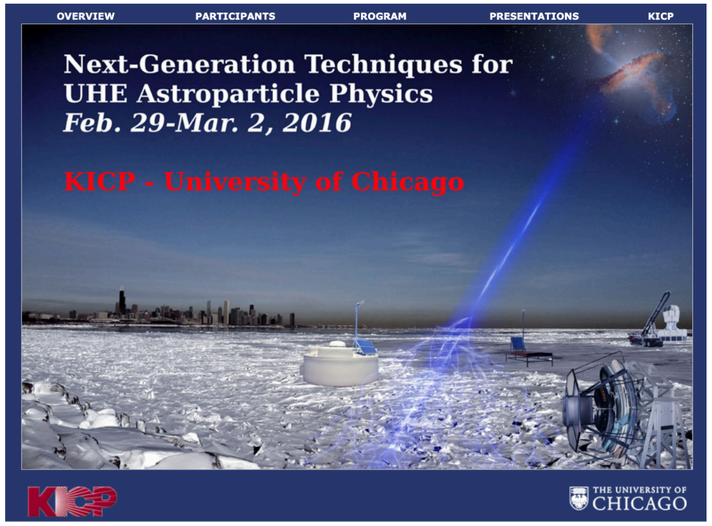
Auger and TA Collaborations

A series of workshops... (just my personally)



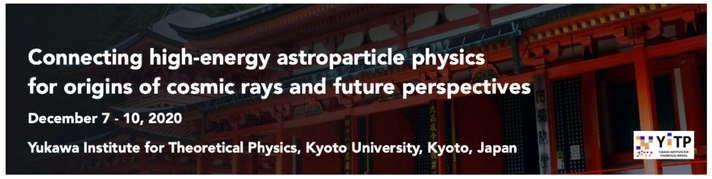
https://kicp-workshops.uchicago.edu/hem2014/

2014

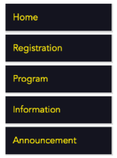


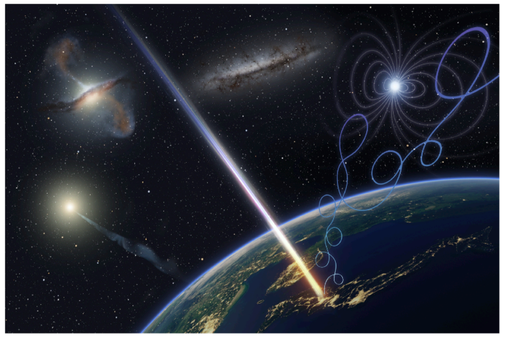
2016

https://kicp-workshops.uchicago.edu/uheap2016/



2020





http://www2.yukawa.kyoto-u.ac.jp/~crphys2020/

Let's start self introduction

- ~1 min / person
  - Your name
  - Your research interests
  - Your current ongoing tasks
    - etc...
- To on-line participants
  - **Please raise your hand if you would like to do self-introduction**
    - If possible, please activate your video
      - Important for sound-check of your system