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David R. Soderblom
Gillian Nave

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HONORING CHARLOTTE MOORE SITTERLY:
ASTRONOMICAL SPECTROSCOPY IN THE 21ST CENTURY

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COVER ILLUSTRATION:

Charlotte Moore-Sitterly, 1945–1968, was an expert in the compilation of atomic spectra. She produced three volumes of atomic energy levels representing a synthesis of the data derived from studies of atomic spectra in the first half of the 20th century.

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Chief Editor

JOSÉ MIGUEL RODRIGUEZ ESPINOSA, General Secretariat

Instituto de Astrofísica de Andalucía

Glorieta de la Astronomía s/n

18008 Granada

Spain

IAU-general.secretary@iap.fr

Editor

DIANA WORRALL, Assistant General Secretary

HH Wills Physics Laboratory

University of Bristol

Tyndall Avenue

Bristol

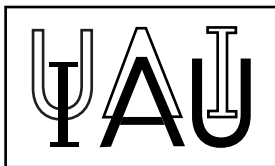
BS8 1TL

UK

IAU-assistant.general.secretary@iap.fr

INTERNATIONAL ASTRONOMICAL UNION
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**HONORING CHARLOTTE
MOORE SITTERLY:
ASTRONOMICAL
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IN THE 21ST CENTURY**

**PROCEEDINGS OF THE 371st SYMPOSIUM OF
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Edited by

DAVID R. SODERBLOM

Space Telescope Science Institute, Baltimore, Maryland, USA

and

GILLIAN NAVE

National Institute of Standards and Technology, Gaithersburg, Maryland, USA



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Table of Contents

Preface	vii
Editors	viii
Participants	ix

Chapter I: Plenary Talks

Charlotte Emma Moore Sitterly: She “turned chaos into order”	3
<i>David H. DeVorkin</i>	
Legacy of Charlotte Moore Sitterly in the Internet Age	12
<i>Alexander Kramida</i>	

Chapter II: Databases and Community Activities

Laboratory Astrophysics Data Working Group IAU 2022 GA session	43
<i>M.L. Dubernet, G.B. Berriman, C. Boersma, C. Jäger, M. Rengel, W. R. M. Rocha, F. Salama and C.M. Zwölf</i>	
Laboratory Astrophysics Activities IAU Commission B5 2022 GA	49
<i>P. S. Barklem, B. Barbuy, M.L. Dubernet, D. Ryu, F. Salama, P.K. Tan and N. Watanabe</i>	
The Importance of Producing and Characterizing Laboratory Analogs of (Exo)Planetary Atmospheric Aerosols	54
<i>Ella Sciamma-O’Brien, Sarah M. Hörst, Ted L. Roush and Farid Salama</i>	
SPECIFY - an important tool of the Leiden Ice Database for Astrochemistry in the era of the James Webb Space Telescope	67
<i>W. R. M. Rocha, M. G. Rachid, B. Olsthoorn, E. F. van Dishoeck, M. K. McClure, K. Slavicinska and H. Linnartz</i>	
Atomic and Molecular Databases Open Science for a sustainable world	72
<i>M.L. Dubernet, G.B. Berriman, P. Barklem, K. Choi, A. Foster, I. Gordon, C. Hill, J. Kim, D.H. Kwon, H. Linnartz, Yu. Ralchenko, F. Salama, H. Shmagun, P. Schilke, D. Seo, J. Shim, S. Shin, M.-Y. Song, J. Tennyson and C. Vastel</i>	

Chapter III: Astronomical Observations

About the atomic and molecular databases in the planetary community – A contribution in the Laboratory Astrophysics Data WG IAU 2022 GA session	87
<i>M. Rengel</i>	

Contribution of small telescopes at the Oukäinden observatory in Morocco to study atmospheric dynamics and shocks waves in variables stars RR Lyr and R Scuti	92
<i>A. Benhida, F. L. Sefyani, K. Chafouai, Y. El Jariri, J. Chouqar, Z. Benkhaldoun, K. Kolenberg and S. Sylla</i>	

Chapter IV: Laboratory Measurements

Analysis of emission line spectra of active galaxies and fine classification for activity types	101
<i>A. M. Mickaelian, H. V. Abrahamyan, G. M. Paronyan and G. A. Mikayelyan</i>	
The Next-Generation Laboratory Experiments on Planetary Materials	104
<i>Xinting Yu</i>	
Accurate new atomic data for Galactic Surveys	111
<i>Maria Teresa Belmonte, Pratysuh R. Sen Sarma and Santiago Mar</i>	
Collisional rate coefficients for astrophysics	123
<i>Alexandre Faure</i>	
Author Index	133

Preface

This volume presents written contributions from IAU Symposium 371, “Honoring Charlotte Moore Sitterly: Astronomical spectroscopy in the 21st century.”

Charlotte Moore Sitterly had a long and remarkable career that fundamentally advanced spectroscopy in general, and astronomical spectroscopy in particular. Key to these advances were her efforts to make atomic data findable and accessible through her multiplet tables and compilations of atomic energy levels, making her a pioneer in the FAIR (findable, accessible, interoperable, and reusable) usage of scientific data - a principal that was emphasized repeatedly throughout the symposium. Her work on compilations carries on in the NIST atomic spectroscopy databases that provide a vital source of atomic data for astronomers. For one of us (DS), her compendium “A Multiplet Table of Astrophysical Interest” provided more practical guidance to reading a stellar spectrum than formal courses, and that experience led to our proposing to honor CMS with a symposium at the IAU General Assembly in Busan, South Korea.

In contrast to the astronomical measurements done at the time that CMS was assembling her multiplet tables, modern astronomical spectroscopy covers the whole electromagnetic spectrum at ever higher precision and sensitivity, causing increasing demands on the quantity and quality of laboratory data. These now cover not only atomic spectra, but molecular spectra, ices, dust properties, aerosols, and other physical systems. We gathered in Busan an international group of speakers to show the breadth of current research. These proceedings provide a record of that.

We start with a history of CMS’ career and personal life, followed by a presentation on the current implications and ramifications of her professional work. We hope you enjoy these papers as much as we enjoyed hearing them.

David R. Soderblom
Space Telescope Science Institute
Baltimore Maryland USA

Gillian Nave
National Institute of Standards and Technology
Gaithersburg Maryland USA

Editors

David R. Soderblom

Space Telescope Science Institute, Baltimore, Maryland, USA

Gillian Nave

National Institute of Standards and Technology, Gaithersburg, Maryland, USA

Scientific Organizing Committee

Helen Fraser (F), Open University, UK

Beatriz Barbay (F), IAG, Brazil

Nancy Brickhouse (F), Harvard-Smithsonian Center for Astrophysics, USA

Paul Barklem (M), Uppsala Univ., Sweden

Juliet Pickering (F), Imperial College, UK

Florian Kerber (M), European Southern Observatory, Germany

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Chris Sneden (M), U. Texas, USA

Peter R. Young (M), NASA GSFC, USA

Satoshi Yamamoto (M), U. Tokyo, Japan

Kaori Kobayashi (F), U. Toyama, Japan

Participants

Hedieh **Abdollahi**, ALzahra university
Biruk **Abraham**, Ethiopia space science technology
institute

abdollahi.hedieh2013@gmail.com
bab3590@gmail.com

Dominic **Adams**, University of Minnesota
Binod **Adhikari**, St. Xavier's College
José Feliciano **Agüí Fernández**, IAA-CSIC

adams900@umn.edu
binod.adhi@gmail.com
feli@iaa.es
hojaeahn@khu.ac.kr
kjahn@chosun.ac.kr
aikawa@astron.s.u-tokyo.ac.jp
alebhairab0@gmail.com
algera@hiroshima-u.ac.jp
dana.alina@nu.edu.kz
rommy@astro.snu.ac.kr
stargazers.bahrain@gmail.com
malwardat@sharjah.ac.ae
subathamaramadasa@gmail.com
deokkeun.an@gmail.com
andika@mpia.de

Hojae **Ahn**, Kyunghee University
Kyungjin **Ahn**, Chosun University
Yuri **Aikawa**, University of Tokyo
Bhairab **Ale**, Tribhuvan University
Hiddo **Algera**, Hiroshima University
Dana **Alina**, Nazarbayev University
Rommy **Aliste Castillo**, Seoul National University
Myriam **Alqassab**, Bahrain Stargazers Astronomy Club
Mashhoor **Alwardat**, University of Sharjah
Dhanushka **Amaradasa**, University of Ruhuna
Deokkeun **An**, Ewha Womans University
Irham Taufik **Andika**, Max Planck Institute for
Astronomy

hbann@pusan.ac.kr
saraujo@iar.unlp.edu.ar

Hong Bae **Ann**, Pusan National University
Susana Beatriz **Araujo Furlan**, Argentine Institute of
Radioastronomy

manuel.aravenaa@mail.udp.cl
harcher@lowell.edu
barchinal@usgs.gov
itziar@inaoep.mx
aayusharya71@gmail.com
yaso@kasi.re.kr

Manuel **Aravena**, Universidad Diego Portales
Haylee **Archer**, Arizona State University
Brent **Archinal**, U. S. Geological Survey
Itziar **Aretxaga**, INAOE
Aayush **Arya**, Lovely Professional University
Yusuke **Aso**, Korea Astronomy and Space Science
Institute

cecilia.bacchini@inaf.it
yoonkwan95@yonsei.ac.kr
giseon8871@gmail.com
jhbaek1001@gmail.com
bahkhyeonguk@gmail.com
balcells@ing.iac.es
stefania.barsanti@anu.edu.au
andrew.battisti@anu.edu.au
rachael.l.beaton@gmail.com
laura.marcela.becerra@gmail.com

Cecilia **Bacchini**, INAF
Yoonkwan **Bae**, Yonsei University
Giseon **Baek**, Kyung Hee University
Junhyun **Baek**, Yonsei University
Hyeonguk **Bahk**, Seoul National University
Marc **Balcells**, Isaac Newton Group
Stefania **Barsanti**, Australian National University
Andrew **Battisti**, Australian National University
Rachael **Beaton**, Princeton University
Laura **Becerra Bayona**, Pontificia Universidad
Católica de Chile
Sara **Beck**, Tel Aviv University
Enrica **Bellocchi**, Universidad Complutense de Madrid
Vardha N. **Bennert**, California Polytechnic State
University San Luis Obispo

becksarac@gmail.com
enricbel@ucm.es
vbennert@calpoly.edu

Apurba **Bera**, Inter-university Centre for Astronomy
and Astrophysics
Danielle **Berg**, The University of Texas at Austin
Matheus **Bernini Peron**, Universtaet Heidelberg
Shankar **Bhattacharai**, Korea Astronomy and Space
Science Institute

apurba.bera@iucaa.in
daberg@austin.utexas.edu
matheus.bernini@uni-heidelberg.de
shankar@kasi.re.kr

Alya BinAshour , University of Sharjah	abinashoor@gmail.com
Mark Bishop , Victoria University of Wellington	mark@bishop.kiwi.nz
Guillermo Blanc , Carnegie Observatories	gblancm@carnegiescience.edu
Stefan Bode , LJMU	bode_stefan@gmx.de
Alberto Bolatto , University of Maryland at College Park	bolatto@umd.edu
Médéric Boquien , Universidad de Antofagasta	mederic.boquien@uantof.cl
Connor Bottrell , University of Tokyo	connor.bottrell@ipmu.jp
Richard Boyle , Vatican Observatory	rpboyle@mac.com
Vinicius Branco , Geofísica e Ciências Atmosféricas	vbranco@usp.br
Gustavo Bruzual , UNAM	g.bruzual@irya.unam.mx
Tomasz Bulik , University of Warsaw	tb@astrouw.edu.pl
Martin Bureau , University of Oxford	martin.bureau@physics.ox.ac.uk
Denis Burgarella , Laboratoire d'Astrophysique de Marseille	denis.burgarella@lam.fr
Maria Luisa Buzzo , Swinburne University of Technology	lgomesbuzzo@swin.edu.au
Woowon Byun , Korea Astronomy and Space Science Institute	wbyun87@gmail.com
Luz Marina Cairós , Institute for Astrophysics and Geophysics	luzma@astro.physik.uni-goettingen.de
Artemi Camps Fariña , Universidad Complutense de Madrid	arcamps@ucm.es
Lina Canas , IAU/NAOJ	lina.canas@nao.ac.jp
Remziye Canbay , Istanbul University	rmzycnby@gmail.com
Luisa Cardona Torres , Instituto Nacional de Astrofísica Óptica y Electrónica	lucardona@inaoep.mx
Leticia Carigi , Instituto de Astronomía UNAM	carigi@astro.unam.mx
Claude Carignan , University of Cape Town	claudc.carignan@gmail.com
Yvelice-Soraya Castillo-Rosales , National Autonomous University of Honduras	yvelice.castillo@unah.edu.hn
Barbara Catinella , ICRAR, University of Western Australia	barbara.catinella@uwa.edu.au
Alagie Ceesay , Gambia National Space Research Institute	amiesannehahgpi@yahoo.com
Vitor Cernic , Universidade de São Paulo	vitormcernic@gmail.com
Solène Chabanier , Lawrence Berkeley National Laboratory	schabanier@lbl.gov
Jennifer Chacón , Escuela Politécnica Nacional	jenniferx12@hotmail.com
Jihyo Chae , Yonsei University	antares0116@gmail.com
Nushkia Chamba , Stockholm University/Oskar Klein Center	nushkia.chamba@astro.su.se
Katie Chamberlain , University of Arizona	katiechambe@email.arizona.edu
Eleni Chatzichristou , European research Council Executive	Agency elthchatz@gmail.com
Judy Chebly , Leibniz Institute for Astrophysics Potsdam	jchebly@aip.de
Jin-Hong Chen , Sun Yat-Sen University	chenjh258@mail2.sysu.edu.cn
Qingxiang Chen , Yale-NUS	qingxiang.chen@yale-nus.edu.sg
Xiaopeng Cheng , Korea Astronomy and Space Science Institute	xcheng@kasi.re.kr
Daya Nidhi Chhatkuli , Tribhuvan University	chhatkulidn@gmail.com
Brian S. Cho , Seoul National University	brian@astro.snu.ac.kr
Hyejeon Cho , Yonsei University	hyejeon@yonsei.ac.kr

Jungyeon Cho , Chungnam National University	jcho@cnu.ac.kr
Youngjun Cho , UNIST	youngjun@unist.ac.kr
Gwangson Choe , Kyung Hee University	gchoe@khu.ac.kr
Bo-Eun Choi , University of Washington	bechoi@uw.edu
Ena Choi , Korea Institute of Advanced Study	enachoi@kias.re.kr
Hyeonho Choi , Seoul National University	hhchoi1022@gmail.com
Jeong yoon Choi , UNIST	jychoi@unist.ac.kr
Jeong Yun Choi , Yonsei University	jychoi8.32@yonsei.ac.kr
Woorak Choi , Yonsei University	woorak.c@yonsei.ac.kr
Youngwoo Choi , Seoul National University	cyw3614@naver.com
Yumi Choi , UC Berkeley	ychoi@stsci.edu
Jørgen Christensen-Dalsgaard , Aarhus University	jcd@phys.au.dk
Martyna Chruslinska , Max-Planck Institute for Astrophysics	martich@mpa-garching.mpg.de
Kyungwon Chun , Korea Astronomy and Space Science Institute	kwchun87@gmail.com
Sang-Hyun Chun , Korea Astronomy and Space Science Institute	shyunc@kasi.re.kr
Aeree Chung , Yonsei University	achung@yonsei.ac.kr
Haeun Chung , University of Arizona	haeunchung@arizona.edu
Milan Cirkovic , Astronomical Observatory of Belgrade	mcirkovic@aob.rs
Cressida Cleland , University of Birmingham	cressidac@star.sr.bham.ac.uk
Rachel Cochrane , Center for Computational Astrophysics	rcochrane@flatironinstitute.org
Matthew Colless , Australian National University	matthew.colless@anu.edu.au
Francoise Combes , Observatoire de Paris	francoise.combes@obspm.fr
Rodney Seayne Cooper , Environmental Protection Agency of Liberia	drdiah1452@gmail.com
Mirko Curti , University of Cambridge	mc2041@cam.ac.uk
Elisabete Da Cunha , University of Western Australia	elisabete.dacunha@uwa.edu.au
Daniel Dale , University of Wyoming	ddale@uwyo.edu
Ashkbiz Danehar , University of Michigan	ashkbiz.danehar@gmail.com
Mousumi Das , Indian Institute of Astrophysics	mousumi@iiap.res.in
Roger Davies , University of Oxford	roger.davies@physics.ox.ac.uk
Loreany De Araújo , University of Sao Paulo	loareanyfa@usp.br
Erwin De Blok , ASTRON	blok@astron.nl
Elisabete M. De Gouveia Dal Pino , IAG-USP	dalpino@iag.usp.br
Richard de Grijs , Macquarie University	richard.de-grijs@mq.edu.au
Roelof De Jong , Leibniz-Institut für Astrophysik Potsdam	rdejong@aip.de
Camila De Sá Freitas , ESO	camila.desafreitas@eso.org
Antonio De Ugarte Postigo , Observatoire de la Côte D'Azur	deugarte@oca.eu
Tim De Zeeuw , Leiden University	tim@strw.leidenuniv.nl
Camilo Delgado-Correal , Francisco José de Caldas District University of Bogotá	m.camilo.d@gmail.com
Caro Derkenne , Macquarie University	caro.derkenne@hdr.mq.edu.au
Tyler Desjardins , STSci	desjard@stsci.edu
Miroslava Dessauges-Zavadsy , University of Geneva	miroslava.dessauges@unige.ch
Subhrata Dey , Astronomical observatory of Jagiellonian University	sdey@oa.uj.edu.pl
María Alejandra Díaz Teodori , IAU	madiazteo@gmail.com
Helene Dickel , University of Illinois	hdickel2@gmail.com
Adam Dong , University of British Columbia	adamdong@phas.ubc.ca
Cintia Durán , Tlaloque	carrillo.du@gmail.com
Eva Durán Camacho , Cardiff University	durancamachoe@cardiff.ac.uk

Saili Dutta , NCRA-TIFR, Pune	sailidutta23@gmail.com
Mayssa El Yazidi , CISAS University of Padova	mayssaelyazidi@gmail.com
Bruce Elmegreen , IBM Research	bge@us.ibm.com
Debra Elmegreen , IAU	elmegreen@vassar.edu
Juan Espejo , Swinburne University of Technology	juancho9303@gmail.com
Ahmed Estiak , Shahjalal University of Science and Technology	ahmedestiak14@gmail.com
Jakob Faber , McGill University/Caltech	jakob.faber@mcgill.ca
Olayinka Fagbemi , AWB Nigeria/African Astronomical Society	yinkaojay@gmail.com
Xiaohui Fan , University of Arizona	xfan@email.arizona.edu
Hira Fatima , University of Karachi	hirafatima1407@gmail.com
Aliou Faye , Gambia National Space Research Institute	camarasambakuru@yahoo.com
Laura Ferrarese , National Research Council of Canada	laura ferrarese1@gmail.com
Ignacio Ferreras , Instituto de Astrofísica de Canarias	iferreras@iac.es
Dana Ficut-Vicas , IAU Office of Astronomy for Development	dana.vicas@gmail.com
Maccagni Filippo , ASTRON	maccagni@astron.nl
Molly Finn , University of Virginia	mf4yu@virginia.edu
Deanne Fisher , Swinburne University	dfisher@swin.edu.au
Francesca Fragkoudi , ESO/Durham University	francesca.fragkoudi@gmail.com
Didier Fraix-Burnet , CNRS	didier.fraix-burnet@univ-grenoble-alpes.fr
Michiko Fujii , University of Tokyo	fujii@astron.s.u-tokyo.ac.jp
Yutaka Fujita , Tokyo Metropolitan University	y-fujita@tmu.ac.jp
Bryan Gaensler , University of Toronto	bryan.gaensler@utoronto.ca
Yu Gao , Xiamen University	yugao@xmu.edu.cn
Luz García , Universidad ECCI	lgarciap@ecci.edu.co
Iveth Adaena Gaspar Gorostieta , Instituto de Astrofísica de Canarias	igaspar@iac.es
Tobias Géron , University of Oxford	tobias.geron@physics.ox.ac.uk
Etsegenet Getachew , Ethiopia Space Science and Technology Institute	tsegiastro@gmail.com
Sepideh Ghaziasgar , Institute for Research in Fundamental Science	sepide.ghaziasgar@gmail.com
Laya Ghods , The University of British Columbia	layaghods@phas.ubc.ca
Mahtab Gholami , Institute for research in fundamental sciences	mhtab.gholami@gmail.com
Aishwarya Girdhar , European Southern Observatory, Garching bei Munich	aishwarya.girdhar@eso.org
Oleksiy Golubov , V. N. Karazin Kharkiv National University	oleksiy.golubov@karazin.ua
Carlos Gomez-Guijarro , CEA Saclay	carlos.gomezguijarro@cea.fr
Denise R. Gonçalves , Federal University of Rio de Janeiro	denise@ov.ufrj.br
Geraldo Gonçalves dos Santos Junior , Universidade de São Paulo	geraldo.goncalves.santos@usp.br
Rosa Amelia Gonzalez-Lopezlira , Universidad Nacional Autónoma de México	r.gonzalez@irya.unam.mx
Kathryn Grasha , Australian National University	kathryn.grasha@anu.edu.au
Richard Green , University of Arizona	rgreen@arizona.edu
Isabelle Grenier , Université de Paris and CEA Saclay	isabelle.grenier@cea.fr
Preben Grosboel , European Southern Observatory	pgrosbol@eso.org

- Marco **Grossi**, Universidade Federal do Rio de Janeiro
 Steven **Gullberg**, University of Oklahoma
 Fulin **Gürsoy**, Istanbul University
 Ji-Hoon **Ha**, Ulsan National Institute of Science and Technology
 Massissilia **Hamadouche**, University of Edinburgh
 Rania **Hamdani**, Youth And Science Association of Tunisia AJST
 Mahmoud **Hamed**, National Centre for Nuclear Research
 Chris **Hamilton**, Institute for Advanced Study
 Daniel **Han**, Yonsei University
 Ilseung **Han**, Astronomy and Space Science Institute
 Jimin **Han**, Kyunghee University
 Jiwon **Han**, Ewha Woman University
 San **Han**, Yonsei University
 Toshihiro **Handa**, Kagoshima University
 Shyam **Harimohan Menon**, Australian National University
 Syed Najamul **Hasan**, Maulana Azad National Urdu University
 Martha **Haynes**, Cornell University
 Hao **He**, McMaster University
 Julia **Healy**, ASTRON
 Jakob **Helton**, University of Arizona
 Gerhard **Hensler**, University of Vienna
 Miftahul **Hilmi**, The University of Melbourne
 Yutaka **Hirai**, University of Notre Dame/Tohoku University
 Kelly **Holley-Bockelmann**, Vanderbilt University
 Ayami **Hotta**, University of Tsukuba
 Marc **Huertas-Company**, IAC - Paris Observatory
 Lucas **Hunt**, United States Naval Observatory/CPI
 Deidre **Hunter**, Lowell Observatory
 Ho Seong **Hwang**, Seoul National University
 Jeeun **Hwang**, Seoul National University
 Narae **Hwang**, Korea Astronomy and Space Science Institute
 Sungyong **Hwang**, Seoul National University
 Minhee **Hyun**, Korea Astronomy and Space Science Institute
 Adaeze Lorreta **Ibik**, University of Toronto
 Kohei **Ichikawa**, Tohoku University
 Ryota **Ikeda**, NAOJ/SOKENDAI
 Elizabeth J. **Iles**, University of Hokkaido
 Myungshin **Im**, Seoul National University
 Sang Hyeok **Im**, Seoul National University
 Susumu **Inoue**, Bunkyo University/RIKEN
 Nur Hidayah **Ismail**, ISMAIL, University of Malaya
 Nariman **Ismailov**, Shamakhy Astrophysical Observatory of ANAS
 Naoki **Isobe**, Japan Aerospace Exploration Agency
 Pascale **Jablonka**, EPFL
 Faezeh **Jahediparizi**, Shahid Bahonar University of Kerman
 grossi@astro.ufrj.br
 gullberg439@earthlink.net
 fulingursoy@gmail.com
 hjhspace223@gmail.com
 mham@roe.ac.uk
 raniahamdeni28.11.00@gmail.com
 mahmoud.hamed@ncbj.gov.pl
 chamilton@ias.edu
 daniel.han@yonsei.ac.kr
 ishan@kasi.re.kr
 jimin@khu.ac.kr
 jiwon9603@naver.com
 sn1994a@gmail.com
 handa@sci.kagoshima-u.ac.jp
 shyam.menon@anu.edu.au
 hasan.najam@gmail.com
 haynes@astro.cornell.edu
 heh15@mcmaster.ca
 healy@astron.nl
 jakobhelton@email.arizona.edu
 gerhard.hensler@univie.ac.at
 mhilmi@student.unimelb.edu.au
 yhirai2@nd.edu
 k.holley@vanderbilt.edu
 hotta@ccs.tsukuba.ac.jp
 mhuertas@iac.es
 lrhunt87@gmail.com
 dah@lowell.edu
 hwang.ho.seong@gmail.com
 jehwang@snu.ac.kr
 nhwang@kasi.re.kr
 viacruxiel@snu.ac.kr
 minhee20400@gmail.com
 adaeze.ibik@mail.utoronto.ca
 k.ichikawa@astr.tohoku.ac.jp
 ryota.ikeda@grad.nao.ac.jp
 iles@astro1.sci.hokudai.ac.jp
 myungshin.im@gmail.com
 tkdgur0117@gmail.com
 sinoue@bunkyo.ac.jp
 hidayahismail14@gmail.com
 ismailovnshao@gmail.com
 n-isobe@ir.isas.jaxa.jp
 pascale.jablonka@epfl.ch
 faezejhdi@yahoo.com

Joscha Jahns , Max-Planck-Institute for Radio Astronomy	jjahns@mpifr-bonn.mpg.de
Agnieszka Janiuk , Center for Theoretical Physics	agnes@cft.edu.pl
Atefeh Javadi , Institute for Research in Fundamental Sciences	atefehj@gmail.com
Bangally Jawara , Gambia National Space Research Institute	gnsribrikama@gmail.com
Sarah Jeffreson , Center for Astrophysics	sarah.jeffreson@cfa.harvard.edu
Seyoung Jeon , Yonsei University	syj3514@yonsei.ac.kr
Young-Beom Jeon , Korea Astronomy and Space Science Institute	ybjjeon@kasi.re.kr
Ha Yeong Jeong , Pusan National University	gkdud1163@gmail.com
Jaehong Jeong , Seoul National University	mre942@gmail.com
Mankeun Jeong , Seoul National University	jmk5040@gmail.com
Taebong Jeong , Kyunghee University	csvwnb@khu.ac.kr
Woong-Seob Jeong , Korea Astronomy and Space Science Institute	jeongws@kasi.re.kr
Yejin Jeong , Kyungpook National University	yeijin0585@naver.com
Yongje Jeong , Seoul National University	stiria@snu.ac.kr
Hannah Jhee , University of Seoul	phynah15@gmail.com
Tae-Geun Ji , Kyung Hee University	jtg7285@gmail.com
Yongseok Jo , Seoul National University	g.kerex@gmail.com
Yun-A Jo , Kyungpook National University	jyajyajya@hanmail.net
Gyula I. G. Józsa , Max-Planck-Institut für Radioastronomie	gjozsa@mpifr.de
Eunsoo Jun , Korea Astronomy and Space Science Institute	esjun@kasi.re.kr
Dooseok Jung , University of Massachusetts Amherst	djung@umass.edu
Minyong Jung , Seoul National University	wispedia@snu.ac.kr
S. Lyla Jung , Australian National University	lyla.jung@anu.edu.au
Edward Jurua , Mbarara University of Science and Technology	ejurua@must.ac.ug
Poonam K.C. , Tribhuvan University	punu0504@gmail.com
Melanie Kaasinen , European Southern Observatory	melanie.kaasinen@eso.org
Hamza Kabba , Gambia National Space Research Institute	haddyndure1983@yahoo.com
Boris Sindhu Kalita , CEA-Saclay, France	boris.kalita@cea.fr
Joshua Kalognia , NRA	jkalognia@st.ug.edu.gh
Da Eun Kang , Heidelberg University	kang@uni-heidelberg.de
Gungwon Kang , Chung-Ang University	gwkang@cau.ac.kr
Gwibong Kang , Chungnam National University	gwibongkang@gmail.com
Hyunwoo Kang , Korea Astronomy and Space Science Institute	orionkhw@kasi.re.kr
Michele Kaufman , retired	kaufmanrallis@icloud.com
Balpreet Kaur , National Centre for Radio Astrophysics	bkaur@ncra.tifr.res.in
Fatoumata Kebe , Association Ephemerides	fatoumata.kebe@gmail.com
Ryan Keenan , University of Arizona	rpkeenana@email.arizona.edu
Elahe Khalouei , Seoul national university	e.khalouei1991@gmail.com
Habib Khosroshahi , IPM	habib@ipm.ir
Chang-Goo Kim , Princeton University	cgkim@astro.princeton.edu
Changseok Kim , Seoul National University	kcs1996kcs@snu.ac.kr
Chulhwan Kim , Kyung-Hee university	ch_kim@khu.ac.kr
Chun-Hwey Kim , Chungbuk National University	kimch@chungbuk.ac.kr
Dongkok Kim , Seoul National University	cruithne33@gmail.com

Helen Kim , University of California, Los Angeles	helenkkim@ucla.edu
Hyowon Kim , UST/KASI	hwkim1011@gmail.com
Jaeun Kim , Kyung Hee University	blue41@khu.ac.kr
Jae-Woo Kim , Korea Astronomy and Space Science Institute	kjw0704@kasi.re.kr
Jaeyeon Kim , Heidelberg University	kim@uni-heidelberg.de
Jaeyeong Kim , Korea Astronomy and Space Science Institute	jaeyeong@kasi.re.kr
Jeein Kim , Yonsei University	jeeinkim@yonsei.ac.kr
JeongCho Kim , Inje University	jeongcho.kim@gmail.com
Jeong-Gyu Kim , Korea Astronomy and Space Science Institute	jeonggyu.astro@gmail.com
Ji Hoon Kim , Seoul National University	jhkim.astrosnu@gmail.com
Ji-hoon Kim , Seoul National University	mornkr@snu.ac.kr
Jinhyub Kim , University of Oxford	jinhyubkim89@gmail.com
Jongsoo Kim , Korea Astronomy and Space Science Institute	jskim@kasi.re.kr
Juhan Kim , Korea Institute for Advanced Study	kjhan0606@gmail.com
Jungha Kim , Korea Astronomy and Space science Institute	junghakim@kasi.re.kr
Junhan Kim , Caltech	junhank@caltech.edu
Kee-Tae Kim , Korea Astronomy and Space Science Institute	ktkim@kasi.re.kr
Keunho Kim , University of Cincinnati	kim2k8@ucmail.uc.edu
Minjin Kim , Kyungpook National University	mkim.astro@gmail.com
Minsu Kim , Sejong University	mandu447@gmail.com
Sang Chul Kim , Korea Astronomy and Space Science Institute	sckim@kasi.re.kr
Seongjae Kim , Korea Astronomy and Space Science Institute	seongjkim@kasi.re.kr
Seonho Kim , Ulsan National Institute of Science and Technology	shkim0707@unist.ac.kr
Seoyoung Kim , Seoul National University	mintlux@snu.ac.kr
Seungmin Kim , Pusan National University	sbaru1998@gmail.com
Shinna Kim , Sejong University	kimns9711@gmail.com
Shinyoung Kim , Korea Astronomy and Space science Institute	syberith@gmail.com
Soon-Wook Kim , Korea Astronomy and Space Science Institute	xrnovae@gmail.com
Sungeun Kim , Sejong University	sek@sejong.ac.kr
Woong-Tae Kim , Seoul National University	unitree@snu.ac.kr
Wooseok Kim , Chungbuk University	robin7639@gmail.com
Yeong Ill Kim , ChungNam University	ghetro07@naver.com
Yeonsik Kim , Kyungpook National University	wave6563@gmail.com
Yonghwi Kim , Korea Institute for Advanced Study	yonghwi.kim@gmail.com
Yongjung Kim , Kyungpook National University	yjkim.ast@gmail.com
Jonas Klevas , Vilnius University	jonas.klevas@tfai.vu.lt
Johan Knapen , Instituto de Astrofísica de Canarias	johan.knapen@iac.es
Eunhee Ko , Seoul National University	eunhee.ko.astro@gmail.com
Jongwan Ko , Korea Astronomy and Space Science Institute	jwko@kasi.re.kr
Jin Koda , Stony Brook University	jin.koda@stonybrook.edu
Keiichi Kodaira , Sokendai	kodaira_keiichi0815@soken.ac.jp
Donghyeok Koh , Korea Astronomy and Space Science Institute	dhkoh@kasi.re.kr

Kotaro Kohno , University of Tokyo	kkohno@ioa.s.u-tokyo.ac.jp
Lena Komarova , University of Michigan	komarova@umich.edu
Toktarkhan Komesh , Al-Farabi Kazakh National University	toktarkhan.komesh@nu.edu.kz
Ayu Konishi , Osaka prefecture university	ayu.kori818@gmail.com
Bon-Chul Koo , Seoul National University	koo@astro.snu.ac.kr
Hyeonmo Koo , Universe of Seoul	mike1919@naver.com
Timea Kovacs , MPIfR	tkovacs@mpifr-bonn.mpg.de
Renée C. Kraan-Korteweg , University of Cape Town	kraan@ast.uct.ac.za
Diederik Kruijssen , Heidelberg University	kruijssen@uni-heidelberg.de
Gajanan Kulkarni , Korea Astronomy and Space Science Institute	kpgajanan@kasi.re.kr
Kyujin Kwak , Ulsan National Institute of Science and Technology	kkwak@unist.ac.kr
Woojin Kwon , Seoul National University	wkwon@snu.ac.kr
Mathieu Langer , Université Paris-Saclay	mathieu.langer@universite-paris-saclay.fr
John Lattanzio , Monash University	john.lattanzio@monash.edu
Lauren Laufman , University of Minnesota Twin Cities	laufm008@umn.edu
Marco Laversveiler , Federal University of Rio de Janeiro	marcoarelio18@astro.ufrj.br
Blake Ledger , McMaster University	ledgeb1@mcmaster.ca
Nicolas Ledos , Osaka University	ledos@astro-osaka.jp
Bomee Lee , Korea Astronomy and Space Science Institute	bomee@kasi.re.kr
Chang Won Lee , Korea Astronomy and Space Science Institute	cwl@kasi.re.kr
Gain Lee , Seoul National University	wag.ur.coke@gmail.com
Jaehyun Lee , Korea Institute of Advanced Study	jaehyun@kias.re.kr
Jeong Hwan Lee , Seoul National University	joungh93@snu.ac.kr
Jeong-Eun Lee , Kyung Hee University	jeongeun.lee@khu.ac.kr
Jong Chul Lee , Korea Astronomy and Space Science Institute	jcleee@kasi.re.kr
Joohyun Lee , University of Texas at Austin	joohyun.lee@austin.utexas.edu
Minseon Lee , Kyung Hee University	mslee@khu.ac.kr
Min-Young Lee , Korea Astronomy and Space Science Institute	mlee@kasi.re.kr
Myung Gyoon Lee , Seoul National University	mglee@astro.snu.ac.kr
Sang Hyun Lee , Korea Astronomy and Space Science Institute	shlee@kasi.re.kr
Seokho Lee , Korea Astronomy and Space Science Institute	seokholee@kasi.re.kr
Seong-Kook Lee , Seoul National University	
s.joshualee@gmail.com	
Seungjae Lee , Seoul National University	balgun1004@gmail.com
Sieun Lee , Kyunghee University	dltdms0113@gmail.com
TaeYong Lee , KyungHee University	tylee@khu.ac.kr
Woojin Lee , UNIST	woojoowj123@unist.ac.kr
Yun Hee Lee , Korea Astronomy and Space Science Institute	yhinjesus@kasi.re.kr
Lerothodi Leeuw , University of the Western Cape	Lerothodi@alum.mit.edu
Claus Leitherer , Space Telescope Science Institute	leitherer@stsci.edu
Adam Leory , Ohio State University	leroy.42@osu.edu
Chun Sing Leung , Hong Kong Polytechnic University	csinleung@polyu.edu.hk
Ho-Hin Leung , University of St Andrews	hhl1@st-andrews.ac.uk
James Leung , University of Sydney	jleu9465@uni.sydney.edu.au

- Benjamin **L'Huillier**, Sejong University
 Kunyang **Li**, Institut d'Astrophysique de Paris
 Shanghuo **Li**, KASI
 Fuheng **Liang**, University of Oxford
 Li-Wen **Liao**, National Tsing Hua University
 Seunghwan **Lim**, CITA, Univ. of Toronto
 Sungsoon **Lim**, Yonsei University
 Wanggi **Lim**, USRA
 Chia-Lung **Lin**, National Central University
 Lihwai **Lin**, ASIAA
 Yen-Ting **Lin**, Academia Sinica
 Maria Luiza **Linhares Dantas**, Nicolaus Copernicus
 Astronomical Center
 Carlos **Lopez-Coba**, ASIAA
 Elismar **Lösch**, University of São Paulo
 James **Lowenthal**, Smith College
 Aran **Lyo**, Korea Astronomy and Space Science
 Institute
 Yik Ki **Ma**, Australian National University
 Fumiya **Maeda**, University of Tokyo
 Vincenzo **Mainieri**, ESO
 Katarzyna **Malek**, National Centre for Nuclear Research
 Bhupendra **Malvi**, Barkatullah University
 Amit Kumar **Mandal**, Seoul National University
 Yunus **Manjoo**, African Astronomical Society
 Lachlan **Marnoch**, Macquarie University
 Isabel **Marquez**, IAA-CSIC
 Garreth **Martin**, KASI, University of Arizona
 Nicolas **Martinet**, Aix-Marseille Université
 Josefa **Masegosa**, IAA-CSIC
 Davide **Massari**, INAF
 Karen **Masters**, Haverford College
 Demetrios **Matsakis**, Masterclock, Inc.
 Hidenori **Matsui**, Asahikawa College
 Ren **Matsusaka**, Kagoshima University
 Jorjyt **Matthee**, ETH Zurich
 Giancarlo **Mattia**, Max Planck Institute for Astronomy
 Karin **Menendez-Delmestre**, Federal University of
 Rio de Janeiro
 Alejandra **Meza**, University of Chile
 Areg **Mickaelian**, Byurakan Astrophysical Observatory
 Gor **Mikayelyan**, NAS RA Byurakan Astrophysical
 Observatory
 Daniel **Mikkola**, Lund University
 Amy **Miller**, Macquarie University
 Bryan **Miller**, Gemini Observatory/NOIRLab
 Elena **Milyute**, theoretical physicist
 Ikki **Mitsuhashi**, the University of Tokyo
 Yusuke **Miyamoto**, Fukui University of Technology
 Rajsekhar **Mohapatra**, Australian National University
 Jun-Sung **Moon**, Seoul National University
 Sanghyuk **Moon**, Seoul National University
 Christopher **Moore**, Harvard-Smithsonian CfA
 Jorge **Moreno**, Pomona College
 Masao **Mori**, University of Tsukuba
 benjamin@sejong.ac.kr
 kunyangli356@outlook.com
 shanghuo.li@gmail.com
 fuheng.liang@physics.ox.ac.uk
 liwen@gapp.nthu.edu.tw
 shlim1206@gmail.com
 sslim00@gmail.com
 wanggi.lim.astro@gmail.com
 m1059006@gm.astro.ncu.edu.tw
 lihwaitlin@asiaa.sinica.edu.tw
 ytl@asiaa.sinica.edu.tw
 mlldantas@protonmail.com
 calopez@asiaa.sinica.edu.tw
 elismar.l@usp.br
 jlowenth@smith.edu
 arl@kasi.re.kr
 yikki.ma@anu.edu.au
 fmaeda@ioa.s.u-tokyo.ac.jp
 vmainier@eso.org
 Katarzyna.Malek@ncbj.gov.pl
 Bhup1201@gmail.com
 amitastro.am@gmail.com
 yunus.manjoo@afasociety.org
 lachlan.marnoch@hdr.mq.edu.au
 isabel@iaa.es
 garreth.martin@ntlworld.com
 nicolas.martinet@lam.fr
 pepa@iaa.es
 davide.massari@inaf.it
 klmasters@haverford.edu
 dnmyiasou@yahoo.com
 matsui@asahikawa-nct.ac.jp
 k9435354@kadai.jp
 jorjyt@gmail.com
 mattia@mpia.de
 kmd@astro.ufrj.br
 ale.mrvest@gmail.com
 aregmick@yahoo.com
 gormick@mail.ru
 mikkola@astro.lu.se
 amyelizmiller@gmail.com
 bryan.miller@noirlab.edu
 litavem3@gmail.com
 ikki.mitsuhashi@grad.nao.ac.jp
 yusuke.miyamot@gmail.com
 rajsekhar.mohapatra@anu.edu.au
 jsmoon.astro@gmail.com
 s.moon@snu.ac.kr
 Christopher.s.moore@cfa.harvard.edu
 jorge.moreno@pomona.edu
 mmori@ccs.tsukuba.ac.jp

Skarleth Motino-Flores , USRA/NASA Ames Research Center	skarlethgm@gmail.com
Marcie Mun , Australian National University	jaeyeon.mun@anu.edu.au
Jeff Munn , U.S. Naval Observatory	jeffrey.a.munn2.civ@us.navy.mil
Takeru Murase , Kagoshima University	takerun.charvel@gmail.com
Chandrashekar Murugesan , CSIRO	chandrashekar.murugesan@csiro.au
Rahul Musale , University of Pune	rahulmusale1100@gmail.com
Kentaro Nagamine , Osaka University	kn@astro-osaka.jp
Masahiro Nagashima , Bunkyo University	masahiro@bunkyo.ac.jp
David Nagy , University of Geneva	nagydavid@hotmail.ch
Roman Nagy , Comenius University in Bratislava	roman.nagy@fmph.uniba.sk
Lilianne Nakazono , Universidade de São Paulo	lilianne.nakazono@usp.br
Themiyá Nanayakkara , Swinburne University of Technology	wnanayakkara@swin.edu.au
Norma Araceli Nava Moreno , Instituto Nacional de Astrofísica, Óptica y Electrónica	nava14@inaoe.mx
Alexander Navarre , University of Cincinnati	navarrae@mail.uc.edu
Patrick Neunteufel , Max Planck Institute for Astrophysics	pneun@mpa-garching.mpg.de
Ngoc Nguyen , Vietnam National Space Center	capi37capi@gmail.com
Thi Phuong Nguyen , Korea Astronomy and Space Science Institute	tpnguyen@kasi.re.kr
Giang Nguyen Chau , Korea University of Science and Technology	chaugiang@kasi.re.kr
Nathalie Nguyen-Quoc Ouellette , Université de Montréal	nathalie.ouellette.2@umontreal.ca
Anna Niemiec , Durham University	anna.niemiec@durham.ac.uk
Masafumi Noguchi , Tohoku University	noguchi@astr.tohoku.ac.jp
Joseph Nuth , NASA Goddard Space Flight Center	joseph.a.nuth@nasa.gov
Ikechukwu Obi , National Space Research and Development Agency	tonykassidy_z@yahoo.com
Caitlin O'Brien , The Ohio State University	obrien.847@osu.edu
Sally Oey , University of Michigan	msoe@umich.edu
Onuche Ogu , NASRDA/AWBNigeria	onucheogu@gmail.com
Boon Kiat Oh , Seoul National University	ohboonkiat@gmail.com
Heeyoung Oh , Korea Astronomy and Space Science Institute	hyoh@kasi.re.kr
Junghwan Oh , Sejong University	joh@sejong.ac.kr
Kyuseok Oh , Korea Astronomy and Space Science Institute	oh@kasi.re.kr
Se-Heon Oh , Sejong University	seheon.oh@sejong.ac.kr
Katsuya Okoshi , Tokyo University of Science	okoshi@rs.tus.ac.jp
Yuri Oku , Osaka University	oku@astro-osaka.jp
Natanael Oliveira , Federal University of Rio de Janeiro	natanael18@astro.ufrj.br
Taira Oogi , Ehime University	oogi@cosmos.phys.sci.ehime-u.ac.jp
Yasna Ordenes Briceño , Pontifical Catholic University of Chile	yordenes@astro.puc.cl
John Orlowski-Scherer , University of Pennsylvania	yorlo@sas.upenn.edu
Mabel Osorio , UNAM	jmosorio@astro.unam.mx
Eve Ostriker , Princeton University	eco@astro.princeton.edu
Koki Otaki , University of Tsukuba	otaki@ccs.tsukuba.ac.jp
Juergen Ott , National Radio Astronomy Observatory	jott@nrao.edu
Justin Otter , Johns Hopkins University	jotter2@jhu.edu
Riley Owens , University of Cincinnati	m.riley.owens@gmail.com
Hamsa Padmanabhan , Université de Genève	hamsa.padmanabhan@unige.ch

Gregory Paek , Seoul National University	gregorypaek94@gmail.com
Insu Paek , Seoul National University	insupaek@snu.ac.kr
Mina Pak , Korea Astronomy and Space Science Institute	minapak@kasi.re.kr
Soojong Pak , Kyung Hee University	soojong@khu.ac.kr
Hsi-An Pan , Tamkang University	hapan@gms.tku.edu.tw
Zhizheng Pan , Purple Mountain Observatory	panzz@pmo.ac.cn
Divya Pandey , National Institute of Technology Rourkela	divyapandey1212@gmail.com
Ayush Pandhi , University of Toronto	ayush.pandhi@mail.utoronto.ca
Byeong-Gon Park , Korea Astronomy and Space Science Institute	bgpark@kasi.re.kr
Changbom Park , Korea Institute for Advanced Study	cbp@kias.re.kr
Gyueun Park , University of Science and Technology KASI	gpark@kasi.re.kr
Hye-Jin Park , The Australian National University	hyejin.park@anu.edu.au
Jaehong Park , Korea Institute for Advanced Study	jaehongpark@kias.re.kr
So-Myoung Park , Korea Astronomy and Space Science	Institute smpark@kasi.re.kr
Woojin Park , Korea Astronomy and Space Science Institute	wjpark@kasi.re.kr
Kaelee Parker , University of Texas at Austin	kaelee.parker@utexas.edu
Bogdan Adrian Pastrav , Institute of Space Science	bapastrav@spacescience.ro
Atharva Patil , National Central University, Taiwan	d1079002@gm.astro.ncu.edu.tw
Amber Patten , Global Family	Alp-love@gmx.com
Sanjaya Paudel , Yonsei University	sanjpaudel@gmail.com
William Pearson , National Center for Nuclear Research	william.pearson@ncbj.gov.pl
Zhiyuan Pei , Guangzhou University	matt.pui.astro@gmail.com
Yingjie Peng , Kavli Institute for Astronomy and Astrophysics, Peking University	yjpeng@pku.edu.cn
Michele Perna , Centro de Astrobiología	michele.perna@cab.inta-csic.es
Annalisa Pillepich , Max Planck Institute for Astronomy	pillepich@mpia.de
Francesca Pinna , Max Planck Institute for Astronomy	francescapinna9@gmail.com
Sandor Pinter , University of Public Service	pinter.sandor@uni-nke.hu
Julia Piotrowska , Jagiellonian University	jpiotrowska@byk.oa.uj.edu.pl
Bianca Poggianti , INAF-Osservatorio Astronomico di Padova	bianca.poggianti@inaf.it
Hom Bahadur Pokhrel , St. Xavier's College	pokhrelsanjay3@gmail.com
Mamta Pommier , CNRS	mamtapan@gmail.com
Emanuela Pompei , ESO	epompei@eso.org
Cristina Popescu , University of Central Lancashire	cpopescu@uclan.ac.uk
Sergey Popov , Lomonosov Moscow State University	polar@sai.msu.ru
Antonio J. Porras-Valverde , Vanderbilt University	antonio.j.porras@vanderbilt.edu
Ana Carolina Posses Nascimento , Universidad Diego Portales	ana.posses@mail.udp.cl
Anna Queiroz , Leibniz Institute for Astrophysics Potsdam -AIP	aqueiroz@aip.de
Miora Rakototafika , University of Antananarivo	minomrak@gmail.com
Varsha Ramachandran , Heidelberg University	vramachandran@uni-heidelberg.de
Jenny Ramos Lázaro , National University of San Marcos	jenny.ramos@unmsm.edu.pe
Zara Randriamanakoto , South African Astronomical Observatory	zara@saa.ac.za
Adarsh Ranjan , Korea Astronomy and Space Science Institute	ranjan@kasi.re.kr

- Tim **Rawle**, European Space Agency
 Soo-Chang **Rey**, Chungnam National University
 Jinsu **Rhee**, Yonsei University
 Mateus **Ribeiro**, Universidade Federal do Rio de Janeiro
 Gabriele **Riccio**, National Centre of Nuclear Research, Warsaw
 Dominik **Riechers**, Universitaet zu Köln
 Joshua **Roberson**, University of Cincinnati
 Victor **Robles**, Yale University
 Erik **Rodrigues de Lima**, Universidade de São Paulo
 Jimena **Rodríguez**, CONICET – UNLP
 Joel **Roediger**, National Research Council Canada
 Ciaran **Rogers**, Leiden University
 Duk-Gyoo **Roh**, KASI
 Anish **Roshi**, Arecibo Observatory
 Arpita **Roy**, Scuola Normale Superiore di Pisa, Italy
 Monica **Rubio**, Universidad de Chile
 Raquel **Ruiz Valença**, Universidade de São Paulo
 Michael **Rutkowski**, Minnesota State University
 Stuart **Ryder**, Macquarie University
 Bohyun **Ryou**, Kyung Hee University
 Taeho **Ryu**, The Max Planck Institute for Astrophysics
 Elaine **Sadler**, University of Sydney
 Teymoor **Saifollahi**, University of Groningen
 Gh. **Saleh**, Saleh Research Centre
 Mambo Abdallah **Salum**, Mbeya University of Science and Technology
 Anahit **Samsonyan**, Byurakan Astrophysical Observatory
 Pablo Manuel **Sánchez Alarcón**, Instituto de Astrofísica de Canarias
 Sebastian Francisco **Sanchez Sanchez**, IA - UNAM
 Divita **Saraogi**, IIT BOMBAY
 Craig **Sarazin**, University of Virginia
 Clifford Alanmayer **Sarfo**, BOZBEC MAYERS
 Purnasha **Sarkar**, Indira Gandhi National Open University
 Asako **Sato**, Kyushu University
 Genta **Sato**, Tohoku University
 Christoph **Saulder**, KASI
 Eva **Schinnerer**, MPIA
 Jennifer **Schober**, EPFL
 Anshuraj **Sedai**, Nepal Astronomical Society
 Peter **Senchyna**, Carnegie Institution for Science
 Mira **Seo**, Pusan National University
 Ji Yeon **Seok**, Korea Astronomy and Space Science Institute
 Marta **Sewilo**, NASA/University of Maryland
 Priya **Shah**, Maulana Azad National Urdu University
 Suruchi **Shahi**, St. Xavier's College
 Samaneh **Shamyati**, Institute for research in fundamental sciences
 Piyush **Sharda**, Australian National University
 Chelsea **Sharon**, Yale-NUS College
 tim.rawle@esa.int
 screy86@gmail.com
 jinsu.rhee@gmail.com
 mribeiro@astro.ufrj.br
 gabriele.riccio@ncbj.gov.pl
 riechers@ph1.uni-koeln.de
 robersju@mail.uc.edu
 victoresfm@hotmail.com
 erik.vini@usp.br
 jimerod@gmail.com
 Joel.Roediger@nrc-cnrc.gc.ca
 ciaran-rogers@hotmail.com
 dgroh@kasi.re.kr
 anish.roshi@gmail.com
 arpita.roy@sns.it
 mrubio@das.uchile.cl
 vruiзраquel@usp.br
 michael.rutkowski@mnsu.edu
 Stuart.Ryder@mq.edu.au
 rbohyun@khu.ac.kr
 tryu@slogin.mpa-garching.mpg.de
 elaine.sadler@sydney.edu.au
 teymur.saif@gmail.com
 postmaster@saleh-theory.com
 salummambo7@gmail.com
 anahit.sam@gmail.com
 pablo.manuel.sanchez.alarcon@iac.es
 sfsanchez@astro.unam.mx
 divitasaraogi@iitb.ac.in
 sarazin@virginia.edu
 alancash777@gmail.com
 purnasha31@gmail.com
 sato.asako.322@s.kyushu-u.ac.jp
 g.sato@astr.tohoku.ac.jp
 csaulder@kasi.re.kr
 schinner@mpia.de
 Schober.Jen@gmail.com
 sedaianshuraj@gmail.com
 psenchyna@carnegiescience.edu
 mrseo@pusan.ac.kr
 jyseok@kasi.re.kr
 mmsewilo@gmail.com
 priya.hasan@gmail.com
 suruchishahi99@gmail.com
 samaneh.shamyati93@gmail.com
 piyush.sharda@anu.edu.au
 chelsea.sharon@yale-nus.edu.sg

- Yun-Kyeong **Sheen**, Korea Astronomy and Space Science Institute
 Hyunjin **Shim**, Kyungpook National University
 Takashi **Shimonishi**, Niigata University
 Eun-jin **Shin**, Seoul National University
 Jihye **Shin**, KASI
 Zihey **Shin**, Korea Astronomy and Space Science Institute
 Yutaka **Shiratori**, Tokai University
 Bekdaulet **Shukirgaliyev**, Nazarbayev University
 Mattia **Sirressi**, Stockholm University
 J. Allyn **Smith**, Austin Peay State University
 Tony **Sohn**, Space Telescope Science Institute
 Manuel **Solimano**, Universidad Diego Portales
 Rachel **Somerville**, Flatiron Institute
 Changhee **Son**, UNIST
 Alessandro **Sonnenfeld**, Leiden University
 Kazuo **Sorai**, Hokkaido University
 Roberto **Soria**, University of the Chinese Academy of Sciences
 Essa **Sowe**, Gambia National Space Research Institute
 Essa **Sowe**, Gambia National Research Institute
 Navin **Sridhar**, Columbia University
 Hannah **Stacey**, Max Planck Institute for Astrophysics
 Benjamin **Stappers**, University of Manchester
 Tjitske **Starkenburger**, Northwestern University
 Eckhard **Sturm**, Max Planck Institute for Extraterrestrial Physics
 Akshaya **Subbanna**, Korea Astronomy and Space Science Institute
 Janette **Suherli**, University of Manitoba
 Ivana **Sulaver**, University of Nova Gorica
 Nofoz **Suleiman**, ELTE university
 Danny **Summers**, Memorial University of Newfoundland
 Jiayi **Sun**, McMaster University
 Yang **Sun**, University of Arizona
 Unnikrishnan Potty **Sureshkumar**, Jagiellonian University
 Kseniia **Sysoliatina**, Astronomisches Rechen-Institut
 Sima **Taefti Aghdam**, Institute for Research in Fundamental Sciences
 Charles **Takalana**, African Astronomical Society
 Norimi **Takeba**, Kagoshima University
 Peng Kian **Tan**, National University of Singapore
 Nahathai **Tanakul**, National Astronomical Research Institute of Thailand
 Elizabeth **Taylor**, University of Nottingham
 Jerusalem Tamirat **Teklu**, Ariel University
 Grace **Telford**, Rutgers University
 Yu-Hsuan **Teng**, University of California at San Diego
 Solomon **Tessema**, Ethiopian Space Science and Technology Institute
 Christina **Thöne**, Astronomical Institute of the Czech Academy of Sciences
 yksheen@kasi.re.kr
 hjshim@knu.ac.kr
 shimonishi@env.sc.niigata-u.ac.jp
 shinej816@snu.ac.kr
 jhshin.jhshin@gmail.com
 zhshin@kasi.re.kr
 shiratori.star@gmail.com
 bekdaulet.shukirgaliyev@nu.edu.kz
 mattia.sirressi@astro.su.se
 smithj@apsu.edu
 tsohn@stsci.edu
 manuel.solimano@mail.udp.cl
 rsomerville@flatironinstitute.org
 ckdgml0424@unist.ac.kr
 sonnenfeld@strw.leidenuniv.nl
 sorai@phys.sci.hokudai.ac.jp
 rsoria@nao.cas.cn
 abdoukadrydrame@yahoo.com
 writgedy2007@yahoo.com
 navinsridhar@gmail.com
 hrstacey@icloud.com
 ben.stappers@manchester.ac.uk
 t.starkenburger@gmail.com
 sturm@mpe.mpg.de
 akshayams@kasi.re.kr
 suherlij@myumanitoba.ca
 sullaweri@gmail.com
 n.suleiman@ttk.elte.hu
 dsummers@mun.ca
 sun208@mcmaster.ca
 sunyang@email.arizona.edu
 uk.potty.s@doctoral.uj.edu.pl
 Sysoliatina@uni-heidelberg.de
 sima.t.aghdam@gmail.com
 charles.takalana@afasociety.org
 n34.bamu.lss@gmail.com
 cqttpk@nus.edu.sg
 ntanakul@gmail.com
 elizabeth.taylor@nottingham.ac.uk
 jerusalem@ariel.ac.il
 grace.telford@rutgers.edu
 elthateng@gmail.com
 researchspace816@gmail.com
 christina.thoene@gmail.com

Yong **Tian**, Natioanl Central University
 Roland **Timmerman**, Leiden University
 Yuan-Sen **Ting**, Australian National University
 Imen **Titouhi**, Tunis science city
 Kazuki **Tokuda**, Kyushu University
 Maryam **Torki**, IPM
 Silvia **Torres-Peimbert**, Universidad Nacional
 Autonoma de Mexico
 L. Viktor **Tóth**, Eötvös University Budapest
 Scott **Trager**, University of Groningen
 Kim-Vy **Tran**, University of New South Wales
 Tony **Travouillon**, The Australian National University
 Patrick **Treuthardt**, North Carolina Museum of
 Natural Sciences
 Dian **Triani**, Australian National University
 Masato **Tsuboi**, Japan Aerospace Exploration Agency
 Takuji **Tsujimoto**, National Astronomical Observatory
 of Japan
 Devendra Raj **Upadhyay**, Tribhuvan University
 Sheona **Urquhart**, The Open University
 David **Valcin**, Ohio University
 Thijs **van der Hulst**, University of Groningen
 Joshiwa **Van Marrewijk**, European Southern
 Observatory
 Carlos **Vargas**, University of Arizona
 Lourdes **Verdes-Montenegro**, Instituto de Astrofísica
 de Andalucía
 Marc **Verheijen**, University of Groningen
 Simone **Veronese**, ASTRON
 Marcelo **Vicentin**, University of São Paulo
 Frederick **Vrba**, US Naval Observatory
 Mike **Walmsley**, University of Manchester
 Di **Wang**, University of Sydney
 Zixian **Wang**, University of Sydney
 Jacob **Ward**, Univeristy of Maryland
 Benjamin **Wehmeyer**, Konkoly Obs/Univ of
 Hertfordshire
 Patricia **Whitelock**, SAAO and UCT
 Antonia **Wilmot**, H M Nautical Almanac Office
 Dejene Zewdie **Woldeyes**, Universidad Diego Portales
 O. Ivy **Wong**, CSIRO
 Tony **Wong**, University of Illinois
 Jong-Hak **Woo**, Seoul National University
 Angus **Wright**, Ruhr-University Bochum
 Po-Feng **Wu**, National Taiwan University
 Zeto **Xia**, Masaryk University, Czech Republic
 Dandan **Xu**, Tsinghua University,
 Jyoti **Yadav**, Indian Institute Of Astrophysics
 Yana **Yakushina**, University of Ghent
 Yoshiyuki **Yamada**, Kyoto University
 Soung-Chul **Yang**, Korea Astronomy and Space Science
 Institute
 Chikako **Yasui**, NAOJ
 Sibaek **Yi**, Kyung Hee University

yongtian@astro.ncu.edu.tw
 rtimmerman@strw.leidenuniv.nl
 yuan-sen.ting@anu.edu.au
 imen.titouhi@cst.rnu.tn
 tokuda@p.s.osakafu-u.ac.jp
 maryamtorki84@gmail.com
 silvia@astro.unam.mx

 l.v.toth@astro.elte.hu
 strager@astro.rug.nl
 kimvy.tran@gmail.com
 tony.travouillon@anu.edu.au
 patrick.treuthardt@naturalsciences.org

 dian.triani@anu.edu.au
 tsuboi@vsop.isas.jaxa.jp
 taku.tsujimoto@nao.ac.jp

 devendra.upadhyay@ac.tu.edu.np
 sheona.urquhart@open.ac.uk
 d.valcin@ohio.edu
 vdulst@astro.rug.nl
 joshiwa.vanmarrewijk@eso.org

 cjvargas@email.arizona.edu
 lourdes@iaa.es

 verheyen@astro.rug.nl
 veronese@astron.nl
 marcelo.vicentin@usp.br
 frederick.j.vrba.civ@us.navy.mil
 michael.walmsley@manchester.ac.uk
 di.wang@sydney.edu.au
 zwan0382@uni.sydney.edu.au
 jacob.wolfgang.ward@gmail.com
 benjamin.wehmeyer@csfk.org

 paw@sao.ac.za
 toni.wilmot@ukho.gov.uk
 dejene.woldeyes@mail.udp.cl
 ivy.wong@csiro.au
 wongt@illinois.edu
 woo@astro.snu.ack.kr
 awright@astro.rub.de
 winder9255@gmail.com
 zeto.xia@gmail.com
 dandanxu@tsinghua.edu.cn
 yadavjyoti636@gmail.com
 ya.yakushina@gmail.com
 yamada@scphys.kyoto-u.ac.jp
 sczoo@kasi.re.kr

 ck.yasui@nao.ac.jp
 sibaekyi@khu.ac.kr

Sukyoung Yi , Yonsei University	yi@yonsei.ac.kr
Kijeong Yim , Chungnam National University	kijeong.yim@gmail.com
Yoshichika Yokoe , University of Tokyo	yokoe@icrr.u-tokyo.ac.jp
Suk Yee Yong , CSIRO	yongsukyee@gmail.com
Jaewon Yoo , KASI/UST	jwyo0@kasi.re.kr
Heesun Yoon , Ulsan National Institute of Science and Technology	gm1tjs315@gmail.com
Hyein Yoon , University of Sydney	hyein.yoon@sydney.edu.au
Jeongkwan Yoon , Ulsan National Institute of Science and Technology	logicyoon@unist.ac.kr
Suk-Jin Yoon , Yonsei University	sjyoon0691@yonsei.ac.kr
Michitoshi Yoshida , National Astronomical Observatory of Japan	michitoshi.yoshida@nao.ac.jp
Hyun Jung Youn , Chungnam National University	17171771@o.cnu.ac.kr
Qingzheng Yu , Xiamen University	yuqingzheng@stu.xmu.edu.cn
Javier Zaragoza Cardiel , INAOE	javier.zaragoza@inaoep.mx
Jorge Zavala , NAOJ	jorgea.zavalas@gmail.com
Woong-bae Zee , Yonsei Univ	galaxy.wb.zi@gmail.com
Haiyan Zhang , National Astronomical Observatories of CAS	hyzhang@bao.ac.cn
Jielai Zhang , Swinburne University of Technology	zhang.jielai@gmail.com
Jun Zhang , Shanghai Jiao Tong University	betajzhang@sjtu.edu.cn
Shuang Zhou , University of Nottingham	Shuang.Zhou@nottingham.ac.uk
Irina Zhuravleva , University of Chicago	zhuravleva@astro.uchicago.edu
Tuila Ziliotto , Pontificia Universidad Catolica de Chile	ziliottotuila@gmail.com
Catherine Zucker , Space Telescope Science Institute	czucker@stsci.edu