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# Honoring Charlotte Moore Sitterly: Astronomical Spectroscopy in the 21st Century

*Edited by*

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.

IAU SYMPOSIUM PROCEEDINGS SERIES

*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](mailto: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](mailto:IAU-assistant.general.secretary@iap.fr)*

INTERNATIONAL ASTRONOMICAL UNION  
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**HONORING CHARLOTTE  
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ASTRONOMICAL  
SPECTROSCOPY  
IN THE 21ST CENTURY**

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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*



**CAMBRIDGE  
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University Printing House, Cambridge CB2 8BS, United Kingdom  
1 Liberty Plaza, Floor 20, New York, NY 10006, 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>	
SPECFY - 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 Oukaimden 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 21<sup>st</sup> 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  
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## Participants

Hedieh **Abdollahi**, ALzahra university  
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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  
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

abdollahi.hedieh2013@gmail.com  
bab3590@gmail.com  
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  
hbann@pusan.ac.kr  
saraujo@iar.unlp.edu.ar  
manuel.aravenaa@mail.udp.cl  
harcher@lowell.edu  
barchinal@usgs.gov  
itziar@inaoep.mx  
aayusharya71@gmail.com  
yaso@kasi.re.kr  
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  
becksarac@gmail.com  
enricbel@ucm.es  
vbennert@calpoly.edu  
apurba.bera@iucaa.in  
daberg@austin.utexas.edu  
matheus.bernini@uni-heidelberg.de  
shankar@kasi.re.kr

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

Jungyeon <b>Cho</b> , Chungnam National University	jcho@cnu.ac.kr
Youngjun <b>Cho</b> , UNIST	youngjun@unist.ac.kr
Gwangson <b>Choe</b> , Kyung Hee University	gchoe@khu.ac.kr
Bo-Eun <b>Choi</b> , University of Washington	bechoi@uw.edu
Ena <b>Choi</b> , Korea Institute of Advanced Study	enachoi@kias.re.kr
Hyeonho <b>Choi</b> , Seoul National University	hhchoi1022@gmail.com
Jeong yoon <b>Choi</b> , UNIST	jychoi@unist.ac.kr
Jeong Yun <b>Choi</b> , Yonsei University	jychoi8.32@yonsei.ac.kr
Woorak <b>Choi</b> , Yonsei University	woorak.c@yonsei.ac.kr
Youngwoo <b>Choi</b> , Seoul National University	cyw3614@naver.com
Yumi <b>Choi</b> , UC Berkeley	ychoi@stsci.edu
Jørgen <b>Christensen-Dalsgaard</b> , Aarhus University	jcd@phys.au.dk
Martyna <b>Chruslinska</b> , Max-Planck Institute for Astrophysics	martich@mpa-garching.mpg.de
Kyungwon <b>Chun</b> , Korea Astronomy and Space Science Institute	kwchun87@gmail.com
Sang-Hyun <b>Chun</b> , Korea Astronomy and Space Science Institute	shyunc@kasi.re.kr
Aeree <b>Chung</b> , Yonsei University	achung@yonsei.ac.kr
Haeun <b>Chung</b> , University of Arizona	haeunchung@arizona.edu
Milan <b>Cirkovic</b> , Astronomical Observatory of Belgrade	mcirkovic@aob.rs
Cressida <b>Cleland</b> , University of Birmingham	cressidac@star.sr.bham.ac.uk
Rachel <b>Cochrane</b> , Center for Computational Astrophysics	rcochrane@flatironinstitute.org
Matthew <b>Colless</b> , Australian National University	matthew.colless@anu.edu.au
Francoise <b>Combes</b> , Observatoire de Paris	francoise.combes@obspm.fr
Rodney Seayne <b>Cooper</b> , Environmental Protection Agency of Liberia	drdiahl452@gmail.com
Mirko <b>Curti</b> , University of Cambridge	mc2041@cam.ac.uk
Elisabete <b>Da Cunha</b> , University of Western Australia	elisabete.dacunha@uwa.edu.au
Daniel <b>Dale</b> , University of Wyoming	ddale@uwyo.edu
Ashkbiz <b>Danehar</b> , University of Michigan	ashkbiz.danehar@gmail.com
Mousumi <b>Das</b> , Indian Institute of Astrophysics	mousumi@iiap.res.in
Roger <b>Davies</b> , University of Oxford	roger.davies@physics.ox.ac.uk
Loreany <b>De Araújo</b> , University of Sao Paulo	loreanyfa@usp.br
Erwin <b>De Blok</b> , ASTRON	blok@astron.nl
Elisabete M. <b>De Gouveia Dal Pino</b> , IAG-USP	dalpino@iag.usp.br
Richard <b>de Grijs</b> , Macquarie University	richard.de-grijs@mq.edu.au
Roelof <b>De Jong</b> , Leibniz-Institut für Astrophysik Potsdam	rdejong@aip.de
Camila <b>De Sá Freitas</b> , ESO	camila.desafreitas@eso.org
Antonio <b>De Ugarte Postigo</b> , Observatoire de la Côte D'Azur	deugarte@oca.eu
Tim <b>De Zeeuw</b> , Leiden University	tim@strw.leidenuniv.nl
Camilo <b>Delgado-Correal</b> , Francisco José de Caldas District University of Bogotá	m.camilo.d@gmail.com
Caro <b>Derkenne</b> , Macquarie University	caro.derkenne@hdr.mq.edu.au
Tyler <b>Desjardins</b> , STSci	desjard@stsci.edu
Miroslava <b>Dessauges-Zavadsky</b> , University of Geneva	miroslava.dessauges@unige.ch
Subhrata <b>Dey</b> , Astronomical observatory of Jagiellonian University	sdey@oa.uj.edu.pl
María Alejandra <b>Díaz Teodori</b> , IAU	madiazteo@gmail.com
Helene <b>Dickel</b> , University of Illinois	hdickel2@gmail.com
Adam <b>Dong</b> , University of British Columbia	adamdong@phas.ubc.ca
Cintia <b>Durán</b> , Tlaloque	carrillo.du@gmail.com
Eva <b>Durán Camacho</b> , Cardiff University	durancamachoe@cardiff.ac.uk

Saili <b>Dutta</b> , NCRA-TIFR, Pune	sailidutta23@gmail.com
Mayssa <b>El Yazidi</b> , CISAS University of Padova	mayssaelyazidi@gmail.com
Bruce <b>Elmegreen</b> , IBM Research	bge@us.ibm.com
Debra <b>Elmegreen</b> , IAU	elmegreen@vassar.edu
Juan <b>Espejo</b> , Swinburne University of Technology	juancho9303@gmail.com
Ahmed <b>Estiak</b> , Shahjalal University of Science and Technology	ahmedestiak14@gmail.com
Jakob <b>Faber</b> , McGill University/Caltech	jakob.faber@mcgill.ca
Olayinka <b>Fagbemi</b> , AWB Nigeria/African Astronomical Society	yinkaojay@gmail.com
Xiaohui <b>Fan</b> , University of Arizona	xfan@email.arizona.edu
Hira <b>Fatima</b> , University of Karachi	hirafatima1407@gmail.com
Aliou <b>Faye</b> , Gambia National Space Research Institute	camarasambakuru@yahoo.com
Laura <b>Ferrarese</b> , National Research Council of Canada	lauraFerrarese1@gmail.com
Ignacio <b>Ferreras</b> , Instituto de Astrofísica de Canarias	iferreras@iac.es
Dana <b>Ficut-Vicas</b> , IAU Office of Astronomy for Development	dana.vicas@gmail.com
Maccagni <b>Filippo</b> , ASTRON	maccagni@astron.nl
Molly <b>Finn</b> , University of Virginia	mf4yu@virginia.edu
Deanne <b>Fisher</b> , Swinburne University	dfisher@swin.edu.au
Francesca <b>Fragkoudi</b> , ESO/Durham University	francesca.fragkoudi@gmail.com
Didier <b>Fraix-Burnet</b> , CNRS	didier.fraix-burnet@univ-grenoble-alpes.fr
Michiko <b>Fujii</b> , University of Tokyo	fujii@astron.s.u-tokyo.ac.jp
Yutaka <b>Fujita</b> , Tokyo Metropolitan University	y-fujita@tmu.ac.jp
Bryan <b>Gaensler</b> , University of Toronto	bryan.gaensler@utoronto.ca
Yu <b>Gao</b> , Xiamen University	yugao@xmu.edu.cn
Luz <b>García</b> , Universidad ECCI	lgarciap@ecci.edu.co
Iveth Adaena <b>Gaspar Gorostieta</b> , Instituto de Astrofísica de Canarias	igaspar@iac.es
Tobias <b>Géron</b> , University of Oxford	tobias.geron@physics.ox.ac.uk
Etsegenet <b>Getachew</b> , Ethiopia Space Science and Technology Institute	tsegiastro@gmail.com
Sepideh <b>Ghaziasgar</b> , Institute for Research in Fundamental Science	sepide.ghaziasgar@gmail.com
Laya <b>Ghods</b> , The University of British Columbia	layaghodsi@phas.ubc.ca
Mahtab <b>Gholami</b> , Institute for research in fundamental sciences	mhtab.gholami@gmail.com
Aishwarya <b>Girdhar</b> , European Southern Observatory, Garching bei Munich	aishwarya.girdhar@eso.org
Oleksiy <b>Golubov</b> , V. N. Karazin Kharkiv National University	oleksiy.golubov@karazin.ua
Carlos <b>Gomez-Guijarro</b> , CEA Saclay	carlos.gomezguijarro@cea.fr
Denise R. <b>Gonçalves</b> , Federal University of Rio de Janeiro	denise@ov.ufrj.br
Geraldo <b>Gonçalves dos Santos Junior</b> , Universidade de São Paulo	geraldo.goncalves.santos@usp.br
Rosa Amelia <b>Gonzalez-Lopezlira</b> , Universidad Nacional Autónoma de México	r.gonzalez@irya.unam.mx
Kathryn <b>Grasha</b> , Australian National University	kathryn.grasha@anu.edu.au
Richard <b>Green</b> , University of Arizona	rgreen@arizona.edu
Isabelle <b>Grenier</b> , Université de Paris and CEA Saclay	isabelle.grenier@cea.fr
Preben <b>Grosboel</b> , European Southern Observatory	pgrosbol@eso.org

- Marco **Grossi**, Universidade Federal do Rio de Janeiro  
 Steven **Gullberg**, University of Oklahoma  
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 Jakob **Helton**, University of Arizona  
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 Yutaka **Hirai**, University of Notre Dame/Tohoku University  
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 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  
 mhurtas@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  
ybjeon@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  
jyajyaja@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  
 Helenkim@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  
 kimsn9711@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**, Soken  
 kodaira\_keiichi0815@soken.ac.jp
- Donghyeok **Koh**, Korea Astronomy and Space Science Institute  
 dhkoh@kasi.re.kr



- Kotaro **Kohno**, University of Tokyo  
 Lena **Komarova**, University of Michigan  
 Toktarkhan **Komesh**, Al-Farabi Kazakh National University  
 Ayu **Konishi**, Osaka prefecture university  
 Bon-Chul **Koo**, Seoul National University  
 Hyeonmo **Koo**, Universe of Seoul  
 Timea **Kovacs**, MPIfR  
 Renée C. **Kraan-Korteweg**, University of Cape Town  
 Diederik **Kruijssen**, Heidelberg University  
 Gajanan **Kulkarni**, Korea Astronomy and Space Science Institute  
 Kyujin **Kwak**, Ulsan National Institute of Science and Technology  
 Woojin **Kwon**, Seoul National University  
 Mathieu **Langer**, Université Paris-Saclay  
 John **Lattanzio**, Monash University  
 Lauren **Laufman**, University of Minnesota Twin Cities  
 Marco **Laversveiler**, Federal University of Rio de Janeiro  
 Blake **Ledger**, McMaster University  
 Nicolas **Ledos**, Osaka University  
 Bomee **Lee**, Korea Astronomy and Space Science Institute  
 Chang Won **Lee**, Korea Astronomy and Space Science Institute  
 Gain **Lee**, Seoul National University  
 Jaehyun **Lee**, Korea Institute of Advanced Study  
 Jeong Hwan **Lee**, Seoul National University  
 Jeong-Eun **Lee**, Kyung Hee University  
 Jong Chul **Lee**, Korea Astronomy and Space Science Institute  
 Joohyun **Lee**, University of Texas at Austin  
 Minseon **Lee**, Kyung Hee University  
 Min-Young **Lee**, Korea Astronomy and Space Science Institute  
 Myung Gyoon **Lee**, Seoul National University  
 Sang Hyun **Lee**, Korea Astronomy and Space Science Institute  
 Seokho **Lee**, Korea Astronomy and Space Science Institute  
 Seong-Kook **Lee**, Seoul National University  
 s.joshualee@gmail.com  
 Seungjae **Lee**, Seoul National University  
 Sieun **Lee**, Kyunghee University  
 TaeYong **Lee**, KyungHee University  
 Woojin **Lee**, UNIST  
 Yun Hee **Lee**, Korea Astronomy and Space Science Institute  
 Lerothodi **Leeuw**, University of the Western Cape  
 Claus **Leitherer**, Space Telescope Science Institute  
 Adam **Leory**, Ohio State University  
 Chun Sing **Leung**, Hong Kong Polytechnic University  
 Ho-Hin **Leung**, University of St Andrews  
 James **Leung**, University of Sydney
- kkohno@ioa.s.u-tokyo.ac.jp  
 komarova@umich.edu  
 toktarkhan.komesh@nu.edu.kz  
 ayu.kori818@gmail.com  
 koo@astro.snu.ac.kr  
 mike1919@naver.com  
 tkovacs@mpifr-bonn.mpg.de  
 kraan@ast.uct.ac.za  
 kruijssen@uni-heidelberg.de  
 kpgajanan@kasi.re.kr  
 kkwak@unist.ac.kr  
 wkwon@snu.ac.kr  
 mathieu.langer@universite-paris-saclay.fr  
 john.lattanzio@monash.edu  
 laufm008@umn.edu  
 marcoaurelio18@astro.ufrj.br  
 ledgeb1@mcmaster.ca  
 ledos@astro-osaka.jp  
 bomee@kasi.re.kr  
 cw1@kasi.re.kr  
 wag.ur.coke@gmail.com  
 jaehyun@kias.re.kr  
 joungh93@snu.ac.kr  
 jeongeun.lee@khu.ac.kr  
 jclee@kasi.re.kr  
 joohyun.lee@austin.utexas.edu  
 mslee@khu.ac.kr  
 mlee@kasi.re.kr  
 mglee@astro.snu.ac.kr  
 shlee@kasi.re.kr  
 seokholee@kasi.re.kr  
 balgun1004@gmail.com  
 dltldms0113@gmail.com  
 tylee@khu.ac.kr  
 woojoowj123@unist.ac.kr  
 yhinjesus@kasi.re.kr  
 Lerothodi@alum.mit.edu  
 leitherer@stsci.edu  
 leroy.42@osu.edu  
 csinleung@polyu.edu.hk  
 hhl1@st-andrews.ac.uk  
 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  
 Jorryt **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  
 lihwailin@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  
 jorryt@gmail.com  
 mattia@mpia.de  
 kmd@astro.ufrj.br  
 ale.mravest@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  
msoey@umich.edu
- Onuche **Ogu**, NASRDA/AWB Nigeria  
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  
jorlo@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 <b>Paek</b> , Seoul National University	gregorypaek94@gmail.com
Insu <b>Paek</b> , Seoul National University	insupaek@snu.ac.kr
Mina <b>Pak</b> , Korea Astronomy and Space Science Institute	minapak@kasi.re.kr
Soojong <b>Pak</b> , Kyung Hee University	soojong@khu.ac.kr
Hsi-An <b>Pan</b> , Tamkang University	hapan@gms.tku.edu.tw
Zhizheng <b>Pan</b> , Purple Mountain Observatory	panzz@pmo.ac.cn
Divya <b>Pandey</b> , National Institute of Technology Rourkela	divyapandey1212@gmail.com
Ayush <b>Pandhi</b> , University of Toronto	ayush.pandhi@mail.utoronto.ca
Byeong-Gon <b>Park</b> , Korea Astronomy and Space Science Institute	bgpark@kasi.re.kr
Changbom <b>Park</b> , Korea Institute for Advanced Study	cbp@kias.re.kr
Gyueun <b>Park</b> , University of Science and Technology KASI	gpark@kasi.re.kr
Hye-Jin <b>Park</b> , The Australian National University	hyejin.park@anu.edu.au
Jaehong <b>Park</b> , Korea Institute for Advanced Study	jaehongpark@kias.re.kr
So-Myoung <b>Park</b> , Korea Astronomy and Space Science Institute	Institute smpark@kasi.re.kr
Woojin <b>Park</b> , Korea Astronomy and Space Science Institute	wjpark@kasi.re.kr
Kaelee <b>Parker</b> , University of Texas at Austin	kaelee.parker@utexas.edu
Bogdan Adrian <b>Pastrav</b> , Institute of Space Science	bapastrav@spacescience.ro
Atharva <b>Patil</b> , National Central University, Taiwan	d1079002@gm.astro.ncu.edu.tw
Amber <b>Patten</b> , Global Family	Alp-love@gmx.com
Sanjaya <b>Paudel</b> , Yonsei University	sanjpaudel@gmail.com
William <b>Pearson</b> , National Center for Nuclear Research	william.pearson@ncbj.gov.pl
Zhiyuan <b>Pei</b> , Guangzhou University	matt.pui.astro@gmail.com
Yingjie <b>Peng</b> , Kavli Institute for Astronomy and Astrophysics, Peking University	yjpeng@pku.edu.cn
Michele <b>Perna</b> , Centro de Astrobiología	michele.perna@cab.inta-csic.es
Annalisa <b>Pillepich</b> , Max Planck Institute for Astronomy	pillepich@mpia.de
Francesca <b>Pinna</b> , Max Planck Institute for Astronomy	francescapinna9@gmail.com
Sandor <b>Pinter</b> , University of Public Service	pinter.sandor@uni-nke.hu
Julia <b>Piotrowska</b> , Jagiellonian University	jpiotrowska@byk.ou.uj.edu.pl
Bianca <b>Poggianti</b> , INAF-Osservatorio Astronomico di Padova	bianca.poggianti@inaf.it
Hom Bahadur <b>Pokhrel</b> , St. Xavier's College	pokhrelsanjay3@gmail.com
Mamta <b>Pommier</b> , CNRS	mamtapan@gmail.com
Emanuela <b>Pompei</b> , ESO	epompei@eso.org
Cristina <b>Popescu</b> , University of Central Lancashire	cpopescu@uclan.ac.uk
Sergey <b>Popov</b> , Lomonosov Moscow State University	polar@sai.msu.ru
Antonio J. <b>Porrás-Valverde</b> , Vanderbilt University	antonio.j.porrás@vanderbilt.edu
Ana Carolina <b>Posses Nascimento</b> , Universidad Diego Portales	ana.posses@mail.udp.cl
Anna <b>Queiroz</b> , Leibniz Institute for Astrophysics Potsdam -AIP	aqueiroz@aip.de
Miora <b>Rakototafika</b> , University of Antananarivo	minomrak@gmail.com
Varsha <b>Ramachandran</b> , Heidelberg University	vramachandran@uni-heidelberg.de
Jenny <b>Ramos Lázaro</b> , National University of San Marcos	jenny.ramos@unmsm.edu.pe
Zara <b>Randriamanakoto</b> , South African Astronomical Observatory	zara@saa.ac.za
Adarsh <b>Ranjan</b> , 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  
 vruizrael@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 **Starkenbug**, 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 **Taefi 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.starkenbug@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  
 sctrager@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  
  
 verheijen@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@saa0.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  
Kijeong **Yim**, Chungnam National University  
Yoshichika **Yokoe**, University of Tokyo y  
Suk Yee **Yong**, CSIRO  
Jaewon **Yoo**, KASI/UST  
Heesun **Yoon**, Ulsan National Institute of Science and Technology  
Hyein **Yoon**, University of Sydney  
Jeongkwan **Yoon**, Ulsan National Institute of Science and Technology  
Suk-Jin **Yoon**, Yonsei University  
Michitoshi **Yoshida**, National Astronomical Observatory of Japan  
Hyun Jung **Youn**, Chungnam National University  
Qingzheng **Yu**, Xiamen University  
Javier **Zaragoza Cardiel**, INAOE  
Jorge **Zavala**, NAOJ  
Woong-bae **Zee**, Yonsei Univ  
Haiyan **Zhang**, National Astronomical Observatories of CAS  
Jielai **Zhang**, Swinburne University of Technology  
Jun **Zhang**, Shanghai Jiao Tong University  
Shuang **Zhou**, University of Nottingham  
Irina **Zhuravleva**, University of Chicago  
Tuila **Ziliotto**, Pontificia Universidad Catolica de Chile  
Catherine **Zucker**, Space Telescope Science Institute
- yi@yonsei.ac.kr  
kijeong.yim@gmail.com  
yokoe@icrr.u-tokyo.ac.jp  
yongsukyee@gmail.com  
jwyoo@kasi.re.kr  
gmiltjs315@gmail.com  
hyein.yoon@sydney.edu.au  
logicyoon@unist.ac.kr  
sjyoon0691@yonsei.ac.kr  
michitoshi.yoshida@nao.ac.jp  
17171771@o.cnu.ac.kr  
yuqingzheng@stu.xmu.edu.cn  
javier.zaragoza@inaoep.mx  
jorgea.zavalas@gmail.com  
galaxy.wb.zi@gmail.com  
hyzhang@bao.ac.cn  
zhang.jielai@gmail.com  
betajzhang@sjtu.edu.cn  
Shuang.Zhou@nottingham.ac.uk  
zhuravleva@astro.uchicago.edu  
ziliottotuila@gmail.com  
czucker@stsci.edu