



BPSC 2022

PROGRAMME OVERVIEW



Royal
Astronomical
Society



Astrobiology
Society of
Britain



Program Overview

21st – Workshops and icebreaker

Session		
0930	Registration opens for morning workshops	Medlar Suite, in The Hub Teas until 11
1000	Analytical techniques	The Hub theatre
1100	GIS of Planetary Surfaces	Library IT Suites A and B
1200	Lunch & registration for afternoon workshop	Lunch vouchers will be provided at registration
1300	Simulating Extra-Terrestrial Environments	Gass seminar room
1500		Tea service at workshops
1630		End of workshops
	Icebreaker events	
1700	UK Planetary Forum Early Careers Meet up	Kents Hill Park Lounge Bar Open to all ECRs
1800	Icebreaker welcome	Kents Hill Park Lounge Bar Open for everyone
1830	Icebreaker BBQ food	Booked with registration
Until late	Icebreaker continues	Kents Hill Park Lounge Bar Open for everyone

22nd – Oral presentations and Posters

Session		
0830	Teas	Poster set up
0900	Welcome	
0920	1 Meteorites	Oral presentations, Q&A Berrill Lecture Theatre
	2 Lightning talk group 1a	Berrill Lecture Theatre
	3 Lightning talk group 1b	Berrill Lecture Theatre
1100	Teas and pastries	Posters in the library
1130	4 Icy Satellites	Oral presentations, Q&A Berrill Lecture Theatre Q&A
	5 Lightning talk group 2	Berrill Lecture Theatre
1300	Lunch	Posters and lunch in the library
1400	6 Lightning talk group 3a	
	7 Exploration and Mars	Oral presentations, Q&A Berrill Lecture Theatre
	8 Lightning talk group 3b	Berrill Lecture Theatre
	9 Lightning talk group 3c	Berrill Lecture Theatre
1600	Posters	Afternoon tea and refreshments
1830	End of day	Library closes



23rd – Oral presentations, the Barrie Jones Award and Conference Dinner

Session		
0845		Teas
0915	10	Icy Bodies & Outer Solar System Oral presentations, Q&A Berrill Lecture Theatre
1100		Teas and pastries Posters in the Library
1130	11	Winchcombe & Carbonaceous Chondrites Oral presentations, Q&A Berrill Lecture Theatre
1300	Lunch	Posters and lunch in the Library
1400	12	Habitability and Life Oral presentations, Q&A Berrill Lecture Theatre
1530		Teas and pastries Library
1600	13	Exploring Mars Oral presentations, Q&A Berrill Lecture Theatre
1730		Barrie Jones Reception and Memorial Award lecture Reception in the Berrill Café
1800		Barrie Jones Award public lecture
1900		Leave the OU for dinner
2000	Dinner at Kents Hill Park	Booked with registration
2130		Ceilidh at Kents Hill Park Included with dinner Lounge Bar open to everyone

24th – Oral presentations and Community forum

Session		
0900		Teas
0930	14	The Earth and the Moon Oral presentations, Q&A Berrill Lecture Theatre
1100		Teas and pastries Poster in the library
1130	15	Venus and Mercury Oral presentations, Q&A Berrill Lecture Theatre
1300	Lunch	Posters and lunch in the library
1400	Community Forum	Community reports Society reports The future of BPSC Berrill Lecture Theatre
1600	Closing remarks	
1600		Clearance of posters



Abstract listing

Day 1, June 22nd

Author	No.	Title
Session 1 Meteorites		
1 Katherine Joy	1	Update on Meteorites found by the Lost Meteorites of Antarctica Project
2 Baker Edward	2	Source of Halogen Elements in Chondrules from Enstatite Chondrites
3 Helen Grant	3	Bulk H ₂ O abundance and D/H ratios of
4 Faye Davies	4	Investigating Chondritic Clasts in Cumberland Falls Achondrite
5 Ben Rider-Stokes	5	History of Magmatism on the Angrite Parent Body
6 Leanne Staddon	6	The petrogenesis and isotopic composition of augite-rich basalt Northwest Africa (NWA) 13467: implications for martian crust and mantle processes
Session 2 Lightning talk group 1a		
1 Lee White	7	Atom probe tomograph of planetary materials: Implications for the age and volatile content of the inner Solar System
2 Gerallt Hughes	8	Fossil micrometeorites from residues of Devonian rocks from the Ural Mountains: New insights from old collections.
3 Peter McArdle	9	Age and Halogen Budget of Enstatite Chondrites
4 Diane Johnson	10	Applications of FIBSEM TOFSIMS: trace chemistry and isotope distribution in non-terrestrial samples analysis
5 Āernok Ana	11	Constraining Pre-Imbrian Bombardment History With Comparative In-Situ Chronometry of Accessory Minerals
6 Ben Rozitis	12	Thermophysical properties of the OSIRIS-REx sample site
7 Eloise Brown	13	Exploration of Spectral Unmixing Algorithms to Estimate Asteroid Surface Composition
8 Peter Krizan	14	The pursuit of elusive extraterrestrial liquid water in astromaterials
9 Martin Suttle	15	Aqueous alteration on carbonaceous asteroids - insights from hydrothermal experiments
Session 3 Lightning talk group 1b		
1 John Bridges	16	The Redistribution of Sulphur in Secondary Minerals of Winchcombe and other CM Chondrites
2 Megan Hammett	17	Formation Conditions of Calcium-Aluminium-Rich Inclusions in Carbonaceous Chondrites: An Experimental Approach
3 Natasha Almeida	18	Curation Of The Winchcombe CM Chondrite Fall
4 Ross Findlay	19	Investigating CM chondrite precursors in Lonewolf Nunataks 94101
5 Charlotte Bays	20	Functional chemistry and morphologies of pristine organic matter within the Winchcombe meteorite
6 Hilary Downes	21	A fragment of the Lunar mantle?
7 Simon Lock	22	The effect of pre-impact surface conditions on the efficiency of giant impact atmospheric loss
8 Divyareshmi Ravy	23	Mineral records of magma storage and crystallization in basaltic systems on the Moon
9 Lukas Adam	24	X-ray Computed Tomography and Diffraction for Basic Characterisation of Mars2020 Samples
Session 4 Icy Bodies & Outer Solar System		
1 Carly Howett	25	Exploring the outer solar system with space robots
2 Oliver King	26	Compositional Mapping of Ganymede with VLT/SPHERE using Markov Chain Monte
3 Georgina Miles	27	Looking for hotspots on Enceladus outside the South Polar Terrain
4 Kat Dapr�	28	Seismic detection of differing interior structures on Enceladus
5 Rachael Hamp	29	Geochemical cycling of the subsurface environment of Enceladus
6 �lvvaro del Moral	30	Exploring Europa's biological potential using laboratory simulations



Session 5		Lightning talk group 2	
1	Katherine Shirley	31	Optimising Filter Bandpass Selection for the Thermal Infrared Imager on ESA's Comet Interceptor Mission
2	Neil Bowles	32	MIRMIS - The Modular Infrared Molecules and Ices Sensor for ESA's Comet Interceptor.
3	Lucy Wright	33	High Resolution Observations of Titan's Equatorial Dynamics using Cassini CIRS Spectra
4	Charlotte Alexander	34	Comparing atmospheric cloud models of Jupiter, can we reduce the degeneracy of this problem?
5	Nisha Ramkissoon	35	Constraining the composition of Europa's subsurface ocean from water-rock interactions
6	Michael Macey	36	Viable metabolisms in a simulated martian chemical environment
7	Velislava Ilieva	37	First insights into the chemistry and microbial community composition of salt plains in a potential Mars analogue site
9	Mark Fox-Powell	38	Entombment of microbial biomass within rapidly frozen fluid droplets relevant to the plumes of Enceladus
9	Anushree Srivastava	39	Two Novel Halobacillus Species were Isolated from the Laboratory Enrichments of Epsomite Crystal from Basque Lakes, BC, Canada
10	Anastasia Kokori	40	The ExoClock Project: an open integrated platform for maintaining the Ariel target ephemerides with contributions from the public
Session 7		Lightning talk group 3a	
1	Victoria Levy	41	Development of a CubeSat system to supplement lunar prospecting missions
2	James Cole	42	Low Power Microwave Heating of Icy Lunar Simulants
3	Neil Bowles	43	The Lunar Trailblazer mission: Understanding the Moon's water
4	Nicholas Elkington	44	Radiometric Calibration for the Lunar Thermal Mapper on NASA's Lunar Trailblazer.
5	Donald Bowden	45	Spectroscopic Analysis of Askival, an Aqueously Altered Cumulate in Gale Crater
6	Donald Bowden	46	Raman Spectroscopy of Mars Analogue Samples from Þórisjökull, Iceland
7	Javier Martin-Torres	47	The Department of Planetary Sciences at the University of Aberdeen
8	Javier Martin-Torres	48	FUTBOLIN (Full Transfer By Optimized LINE-by-line methods): a new line-by-line radiative transfer code for planetary research
9	Javier Martin-Torres	49	The Science of the HABIT (HabitAbility: Brine, Irradiation and Temperature) instrument
10	Javier Martin-Torres	50	Brine-Induced Tribocorrosion and Implications for Mars Exploration
Session 7		Exploration and Mars	
1	Kevin Olsen	51	Contemporary chemistry in the Martian atmosphere observed with the ExoMars Trace Gas Orbiter
2	Jonathon Mason	52	Martian ozone and aerosol climatology from MY34 to MY36 as measured by the NOMAD-UVIS spectrometer
3	Megan Brown	53	Impacts of Heterogeneous Chemistry on Vertical Profiles of Martian Ozone
4	Kylash Rajendran	54	4D Transport of Hydrogen Chloride in the Martian Atmosphere
5	Paul Streeter	55	Seasonal behaviour of Mars' northern polar vortex
6	Roger Stabbins	56	Seeing Minerals Clearly: Learning Dimension Reductions on Spectral Reflectance Libraries for Efficient In Situ Multispectral Image Acquisition and Analysis
Session 8		Lightning talk group 3b	
1	Jack Wright	57	Combining spectral and morphostratigraphic units on Mercury: A case study of the Rachmaninoff basin area
2	Annie Lennox	58	Geological Mapping of Mercury's Bach-side (the south polar Bach Quadrangle, H15)
3	Alistair Blance	59	Mapping Mercury's Discovery Quadrangle
4	Benedict Hyland	60	Global Dust Storms on Mars: The Initialisation, Growth, and Categorisation of Global Dust Storms on Mars
5	Juan Alday	61	Searching for odd-hydrogen in the atmosphere of Mars with the ExoMars Trace Gas Orbiter
6	Miracle Israel Nazarious	62	Calibration of the HABIT (HabitAbility: Brine, Irradiation and Temperature) instrument
7	Miracle Israel Nazarious	63	DNA extraction and sequencing from liquid planetary analogues for in-situ life detection and characterization
8	David Slade	64	Methane production by a hydrogenotrophic methanogen in a simulated chemical martian subsurface environment
9	Alexander Barrett	65	Classifying Planetary Surfaces Using Deep Learning, Results From Martian Landing Sites.



10	Yu Tao	66	Subpixel-Scale Topography Retrieval of Mars Using Deep Learning
11	Jan-Peter Muller	67	3D mapping of the Moon using stereo and MADNet single image height estimation
Session 9		Lightning talk group 3c	
1	Graham Driver	68	Morphological Diversity of Glacier-Like Forms on Mars
2	Ben Cornford	69	Morphological complexity of Concentric Crater Fills on Mars: insights into glacial history
3	Nisha Gor	70	Geomorphological mapping and investigation of a mountain glacier in the Argyre Region, Mars.
4	Neil Arnold	71	Surface topographic impact of water bodies beneath Mars' south polar ice cap
5	Peter Fawdon	72	The geological map of the ExoMars rover landing site.
6	Stuart Turner	73	Carbonate formation in Gale crater, Mars: a thermochemical modelling perspective
7	Amy Dugdale	74	Impact-generated modification of the mineralogy at Oxia Planum
8	Emma Harris	75	Distribution and morphology of the dark capping unit in Oxia Planum, Mars
9	Savana Woodley	76	Tectonic shortening along the Chryse Planitia - Arabia Terra dichotomy.
10	Joel Davis	77	Ancient Alluvial Plains at Oxia Planum, Mars

Day 2 June 23rd

Author	No.	Title
Session 10		Icy Bodies & Outer Solar System
1	Emma Bunce	78 <i>Title TBD</i> : JUICE and planetary magnetospheres
2	Leigh Fletcher	79 Flagship Mission to Uranus: Exploring our Closest Ice Giant System
3	Michael Roman	80 Uranus and Neptune in the Infrared: Recent Observations and the Future with JWST
4	Nicholas Teanby	81 External atmospheric water flux at Neptune and Uranus; constraints from Herschel/HIFI observations
5	Geraint Jones	82 The Comet Interceptor Mission
6	Samuel Grant	83 Prediction and Detection of Solar Orbiter's December 2021 encounter with Comet Leonard
7	Laura Buchanan	84 Probing Colour Transitions in the Primordial Kuiper Belt
8	Conor Nixon	85 Observations of Titan with the James Webb Space Telescope (JWST)
Session 11		Winchcombe & Carbonaceous Chondrites
1	Ashley King	86 The Fall, Recovery, and Initial Analysis of the Winchcombe CM Chondrite
2	Luke Daly	87 Nano-scale heterogeneity in the extent of aqueous alteration within the Winchcombe CM chondrite fall
3	Dan Haspel	88 Pushing the limits of SEM-based microanalysis for the characterisation of complex, heterogeneous meteorite microstructures
4	Richard Greenwood	89 Cr, Cd, Te, Ti, Zn AND O-ISOTOPE COMPOSITION OF THE WINCHCOMBE (CM2) METEORITE
5	John Bridges	90 Surface Melting Processes on C-class Asteroid Ryugu
6	Catherine Harrison	91 Thermal History of Dehydrated CM Chondrites Reconstructed from their Fe-sulphide Grains
7	Monica Grady	92 Planetary Science in the UK: An update on LARES and CAFES
Session 12		Habitability and Life
1	Eva Stueeken	93 Reassessing Earth's oldest records of carbon and nitrogen cycling
2	Craig Walton	94 The cosmic desert: exogenous sediments on Early Earth
3	Toni Galloway	95 Carbon and Nitrogen Cycling within a Geothermal Mars Analogue
4	Emily Bonsall	96 Reactive iron species and organic carbon interactions in planetary materials
5	Andrew Rushby	97 (Some) Land and Ice Albedo Feedbacks and the Climate and Habitability of Terrestrial Planets Orbiting M-dwarf Stars
6	Claire Guimond	98 Theoretical limits to land coverage on rocky planets
7	Matthew Davey	99 Cryophilic microorganism utilisation and analogues for space biology



Session 13		Exploring Mars	
1	Steven Banham	100	A primordial Scottish delta: a roadmap for assessing habitable environments on the ancient Martian surface?
2	Ondrej Kryza	101	The effect of salinity to propagation and morphology of small-scale mudflows in low pressure environment: Insights from laboratory simulations
3	Peter Grindrod	102	An Updated Global Catalogue of Rayed Craters on Mars: Potential Source Locations for Martian Meteorites
4	John Edgar	103	Mechanochemical generation of perchlorates on Mars.
5	Elena Favaro	104	The Aeolian Environment of Oxia Planum
6	Amelie Roberts	105	Reconstructing the palaeoenvironment of the sediment fan at Oxia Planum, Mars
7	Joseph McNeil	106	The Former Extent of the Mawrth Vallis Phyllosilicates

Day 3 June 24th

Author	No.	Title	
Session 14		The Earth and the Moon	
1	Romain Tartese	107	What have we learnt so far from the samples returned from the Moon by the Chang'e-5 mission?
2	Samantha Bell	108	Identification of potential exogenously-derived components in Apollo 17 73002 continuous core thin sections using QEMSCAN mapping techniques
3	Giulia Magnarini	109	Evidence of recent slope deformation and the lasting effect of local tectonic stress in Taurus-Littrow Valley, the Moon
4	Csilla Orgel	110	Probability of accessing stable water-ice in the lunar south polar region
5	Mukesh Chiman Bhatt	111	Legal Perspectives on In-Situ Resource Utilisation in Outer Space
6	Auriol Rae	112	Dynamic Strength and Fragmentation during High-Rate Brittle Failure
7	Liza Riches	113	Shock deformation in feldspar in the Chicxulub impact structure
8	Safoura Tanbakouei	114	Raman mapping of shocked basalts from Lonar Crater, India: Evidence for diamond as a biosignature resulting from shocked organic carbon
Session 15		Venus and Mercury	
1	Richard Ghail	115	What Venus reveals about the nature of Earth-sized planets
2	Aedan Baker	116	Composition-Induced Density Variations in the Venesian Crust and their Implications for Tesseræe Formation
3	Connor Hoad	117	Is Lada Terra the Site of a Venus Overturn Upwelling ZONE (OUZO)?
4	Shubham Kulkarni	118	Retrieval of main cloud structure using Venera 13 and 14 descent probe data
5	Benjamin Man	119	Newly discovered widespread extensional grabens on Mercury's compressional structures
6	Graeme Hall	120	The Distribution of Peak-ring Basins on Mercury and their Correlation with the High-Mg/Si Terrane
7	Annie Lennox & Alistair Blance	121	Ejecta flows on Mercury: Prevalence, significance, and timing of emplacement
8	Dave Rothery	122	Dave Rothery Bepi-Colombo images placeholder



Author index

Author	Abstract no.	Session, Sequence
Adam, Lukas	24	3 9
Alday, Juan	61	8 5
Alexander, Charlotte	34	5 4
Almeida, Natasha	18	3 3
Rushby, Andrew	97	12 5
Arnold, Neil	71	9 4
<hr/>		
Baker, Aedan	116	15 2
Banham, Steven	100	13 1
Barrett, Alexander	65	8 9
Bays, Charlotte	20	3 5
Bell, Samantha	108	14 2
Bhatt, Mukesh	111	14 5
Blance, Alistair	121	15 7
	59	8 3
Bonsall, Emily	96	12 4
Bowden, Donald	45	6 5
	46	6 6
Bowles, Neil	32	5 2
	43	6 3
Bridges, John	16	3 1
	90	11 5
Brown, Eloise	13	2 7
Brown, Megan	53	7 3
Buchanan, Laura	84	10 7
Bunce, Emma	78	10 1
<hr/>		
Černok, Ana	11	2 5
Cole, James	42	6 2
Cornford, Ben	69	9 2
<hr/>		
Daly, Luke	87	11 2
Dapré, Kat	28	4 4
Davey, Matthew	99	12 7
Davies, Faye	4	1 4
Davis, Joel	77	9 10
del Moral, Álvaro	30	4 6
Downes, Hilary	21	3 6
Driver, Graham	68	9 1
Dugdale, Amy	74	9 7
<hr/>		
Edgar, John	103	13 4
Edward, Baker	2	1 2
Elkington, Nicholas	44	6 4



Favaro, Elena	104	13	5
Fawdon, Peter	72	9	5
Fletcher, Leigh	79	10	2
Fox-Powell, Mark	38	5	9
Galloway, Toni	95	12	3
Ghail, Richard	115	15	1
Gor, Nisha	70	9	3
Grady, Monica	92	11	7
Grant, Helen	3	1	3
Grant, Samuel	83	10	6
Greenwood, Richard	89	11	4
Grindrod, Peter	102	13	3
Guimond, Claire	98	12	6
Hall, Graeme	120	15	6
Hammett, Megan	17	3	2
Hamp, Rachael	29	4	5
Harris, Emma	75	9	8
Harrison, Catherine	91	11	6
Haspel, Dan	88	11	3
Hoad, Connor	117	15	3
Howett, Carly	25	4	1
Hughes, Gerallt	8	2	2
Hyland, Benedict	60	8	4
Ilieva, Velislava	37	5	7
Johnson, Diane	10	2	4
Jones, Geraint	82	10	5
Joy, Katherine	1	1	1
King, Ashley	86	11	1
King, Oliver	26	4	2
Kokori, Anastasia	40	5	10
Krizan, Peter	14	2	8
Kryza, Ondrej	101	13	2
Kulkarni, Shubham	118	15	4
Lennox, Annie	58	8	2
	121	15	7
Levy, Victoria	41	6	1
Lock, Simon	22	3	7
Macey, Michael	36	5	6
Magnarini, Giulia	109	14	3
Man, Benjamin	119	15	5
Martin-Torres, Javier	47	6	7
	48	6	8
	49	6	9
	50	6	10
Mason, Jonathon	52	7	2
Mc Ardle, Peter	9	2	3



McNeil, Joseph	106	13	7
Miles, Georgina	27	4	3
Muller, Jan-Peter	67	8	11
Nazarious, Miracle	62	8	6
	63	8	7
Nixon, Conor	85	10	8
Olsen, Kevin	51	7	1
Orgel, Csilla	110	14	4
Pardasani, Yash	99	12	7
Rae, Auriol	112	14	6
Rajendran, Kylash	54	7	4
Ramkissoon, Nisha	35	5	5
Ravy, Divyareshmi	23	3	8
Riches, Liza	113	14	7
Rider-Stokes, Ben	5	1	5
Roberts, Amelie	105	13	6
Roman, Michael	80	10	3
Ross, Findlay	19	3	4
Rothery, Dave	122	15	8
Rozitis, Ben	12	2	6
Shirley, Katherine	31	5	1
Slade, David	64	8	8
Srivastava, Anushree	39	5	9
Stabbins, Roger	56	7	6
Staddon, Leanne	6	1	6
Streeter, Paul	55	7	5
Stueeken, Eva	93	12	1
Suttle, Martin	15	2	9
Tanbakouei, Safoura	114	14	8
Tao, Yu	66	8	10
Tartese, Romain	107	14	1
Teanby, Nicholas	81	10	4
Turner, Stuart	73	9	6
Walton, Craig	94	12	2
White, Lee	7	2	1
Woodley, Savana	76	9	9
Wright, Jack	57	8	1
Wright, Lucy	33	5	3