## 21st ACMS Conference: Program

## 8:00 Registration

•	on: Owen J Wordsworth Room John Keeling	
8:30-8:40	ACMS President John Keeling  Welcome and house keeping.	1
8:40-9:00	R Eggleton and J Fitz Gerald  Illite from Muloorina, South Australia.	3
9:00-9:20	F Hubert, <u>L Caner</u> and A Meunier <i>Use of direct XRD pattern fitting to quantify clay mineral assemblage changes and unravel soil change processes.</i>	7
9:20-9:40	<u>C Johnston</u> , G Premachandra, T Szabo and R Schoonheydt Interactions of proteins on clay surfaces.	11
9:40-10:00	C-H Zhou, H Xia, G Jiang, D Tong and W Yu  Natural and synthetic clay minerals for tailoring preparation of nanostructured functional materials.	13
10:00-10:20	Morning Tea: Owen J Wordsworth Room	
	tes: Owen J Wordsworth Room Jock Churchman	
10:20-10:35	W Gates, J Bishop, H Makarewicz, N McKeown and T Hiroi  Presence of beidellites on the Martian surface.	19
10:35-10:50	N Chittamart, A Suddhiprakarn, I Kheoruenromne and R Gilkes Beidellite in tropical savanna soils.	23
10:50-11:05	S Lessovaia, V Krupskaya, Yu Polekhovsky, M Vigasina and L Melchakova Smectites in soils from serpentinous dunites of the Polar Urals, Russia.	27
11:05-11:20	H Bordallo, W. Gates, <u>L. Aldridge</u> , G Churchman and Z Izaola Water-cation interaction in Na or Ca saturated montmorillonite interpreted by neutron scattering.	31
11:20-11:35	J Keeling, P Self and M Raven  Halloysite formation in Cenozoic sediments marginal to the Eucla  Basin, South Australia.	35
11:35-11:50	J Wyatt, <u>D Lowe</u> , V Moon and G Churchman  Discovery of halloysite books in a ~270,000 year-old buried tephra deposit in northern New Zealand.	39
11:50-12:05	D Russell, <u>W Hudnall</u> and B Allen  Micromorphology investigation of sepiolite bearing petrocalcic horizons formed from lacustrine sediments of the Southern High Plains of Texas and New Mexico.	43
12:05-12:25	Discussion on session	

## Oxides, oxyhydroxides and sulfates: Room S410 Chair: Bob Gilkes

10:20-10:35	R Fitzpatrick, M Raven, P Shand, S McClure and P Self Occurrence and environmental significance of sideronatrite and other mineral precipitates in acid sulfate soils.	47
10:35-10:50	<u>I Bibi</u> , Balwant Singh and E Silvester <i>Akagenéite</i> (β–FeOOH) precipitation in inland acid sulfate soils of south-western New South Wales.	51
10:50-11:05	N Prakongkep, R Gilkes, Balbir Singh and S Wong  Pyrite and elemental sulphur cause acidification of drying wetlands on the Swan Coastal Plain, Western Australia.	55
11:05-11:20	Balwant Singh  Some observations on the structural incorporation of trace elements in the structure of iron oxides.	59
11:20-11:35	W Wisawapipat, I Kheoruenromne, A Suddhiprakarn and R Gilkes  Characterization of magnetic iron oxides in Oxisols using XRD and  Fourier transform infrared spectrometry.	61
11:35-11:50	J Yang and R Frost Facile self-assembly synthesis of high-quality disc-like heterogenite (CoOOH) nanomaterials.	65
11:50-12:05	N Zwingmann, G Carter, N Tezuka, R Hart, A van Riessen and V Golovanevskiy  Impact of physical properties on handling characteristics of iron ore.	67
12:05-12:25	Discussion on session	
12:25-13:55	Lunch: Owen J Wordsworth Room	
Posters		
I OBCCIB		
13:55-14:25	Authors please be available for informal discussion and questions	
	Authors please be available for informal discussion and questions  I Bibi, Balwant Singh and E Silvester  Measuring dissolution rates of illite in saline-acidic solutions using flow-through reactors.	73
	I Bibi, Balwant Singh and E Silvester  Measuring dissolution rates of illite in saline-acidic solutions using	73 75
	<ul> <li>I Bibi, Balwant Singh and E Silvester         Measuring dissolution rates of illite in saline-acidic solutions using flow-through reactors.</li> <li>N Creeper, R Fitzpatrick, P Shand, P Self and R Kingham         A systematic analysis procedure incorporating the chip-tray incubation method for the hazard assessment of Acid Sulfate Soils in</li> </ul>	
	<ul> <li>I Bibi, Balwant Singh and E Silvester         Measuring dissolution rates of illite in saline-acidic solutions using flow-through reactors.</li> <li>N Creeper, R Fitzpatrick, P Shand, P Self and R Kingham         A systematic analysis procedure incorporating the chip-tray incubation method for the hazard assessment of Acid Sulfate Soils in the Murray-Darling Basin.</li> <li>W Gates and P Hines</li> </ul>	75
	<ul> <li>I Bibi, Balwant Singh and E Silvester         Measuring dissolution rates of illite in saline-acidic solutions using flow-through reactors.</li> <li>N Creeper, R Fitzpatrick, P Shand, P Self and R Kingham         A systematic analysis procedure incorporating the chip-tray incubation method for the hazard assessment of Acid Sulfate Soils in the Murray-Darling Basin.</li> <li>W Gates and P Hines         Alkaline-leachate induces pore-filling reactions in GCLs.</li> <li>K Anuar Kassim, A Eisazadeh and H Nur</li> </ul>	75 79

	<u>P Pasbakhsh</u> , H Ismail, M Ahmad Fauzi and A Abu Bakar <i>Halloysite nanotubes as a novel nanofiller for polymer nanocomposites</i> .	93
	M Raven, R Fitzpatrick, P Shand and S McClure  Minerals diagnostic of acid sulfate soils.	97
	Y Song, J Ji, C Mao, R Frost and G Ayoko Vis/NIR spectroscopic study for heavy metals in seasonal suspended solid of Changjiang River.	101
	<u>F Theiss</u> , S Palmer, G Ayoko and R Frost  Application of layered double hydroxides for water purification.	103
	Y Xi, M. Mallavarapu and R Naidu  Preparation and characterization of zero-valent iron grafted bentonites and their applications for orange II decolourization.	105
	<u>H Zwingmann</u> , A Todd, M Raven and R Hart  Authigenic illite formation - A tool for constraining timing of brittle  deformation: Case studies from Europe, Japan and Australia.	109
_	and Analysis: Owen J Wordsworth Room r: Will Gates	
14:25-14:40	G. Bourrié and F Trolard  Estimation of thermodynamic properties of hydroxides, oxides and layered double hydroxysalts from the electronegativities of the elements.	113
14:40-14:55	R Joeckel, <u>R Greene</u> and J Mason  The role of clay mineralogy and electrolytes in determining the stability of clay pellets in dry saline lakebeds of the USA and SE Australia.	117
14:55-15:10	M Taylor, N Kim, A Taylor and D Guinto  Dealumination in soil of the Auckland, Bay of Plenty and Waikato  Regions, New Zealand.	119
15:10-15:25	<u>W Markgraf</u> , C Watts, R Whalley and R Horn  Influence of mineralogical compounds and organic matter on rheological properties: Classifying stiffness degradation in soils.	121
15:25-15:40	<u>A El Nahry</u> <i>Using geostatistical analysis and spectral signature for identifying shale distribution and type in El Salhia project, Ismaillia, Egypt.</i>	125
15:40-15:55	Discussion on session	

Chemistry: R Chair:	Room S410 Rob Fitzpatrick	
14:25-14:40	H Cheng and R Frost  Thermal analysis of coal-bearing strata kaolinite/potassium acetate intercalation complexes.	127
14:40-14:55	E Yusiharni and R Gilkes  Do heated gibbsite, kaolinite and goethite rehydroxylate?	131
14:55-15:10	R Frost and S Palmer Application of layered double hydroxides for water purification.	135
15:10-15:25	<u>T Santini</u> and M Fey <i>Hydrotalcite precipitation during neutralization of bauxite residue leachate with acidic saline drainage water.</i>	137
15:25-15:40	B Sarkar, Y Xi, M Megharaj, G Krishnamurti and R Naidu  Preparation and characterisation of organopalygorskites and their application for p-nitrophenol adsorption.	141
15:40-15:55	Discussion on session	
15:55-16:15	Afternoon Tea: Owen J Wordsworth Room	
	Wordsworth Room  Balwant Singh	
16:15-16:30	P Obura, <u>D Schulze</u> , R Okalebo, C Othieno, P Kisinyo, C Johnston and K Rana  Similarities and differences in the chemistry and mineralogy of some acid soils from maize growing regions of Kenya, Uganda, Tanzania, and Brazil.	145
16:30-16:45	G Holbeche, R Gilkes and R George  Clay mineral assemblages in valley floor soils in south-west Australia.	147
16:45-17:00	R Mirkhani, M Hassan Roozitalab, N Khaleghpanah, N Rezaei and S Teimouri  Physico-chemical characteristics and clay mineralogy composition of selected soils in arid and semiarid regions of Iran.	151
17:00-17:15	<u>T Darunsontaya</u> , A Suddhiprakarn, I Kheoruenromne and R Gilkes  Relationship between K release from clay fraction to NaTPB solution and properties of clay for Thai upland soils.	155
17:15-17:30	Discussion on session	

<b>Environment:</b> Chair:	Room S410 Mark Raven	
16:15-16:30	K Hanna, E Clervil, M Usman, E Emmanuel and C Ruby  The effect of clay mineralogy on the transport of bromide and nalidixic acid in water-saturated soil columns.	159
16:30-16:45	<u>D Krisnayanti</u> , C Smith, L Condron and S Reichman  Effect of using organic and inorganic amendments on the weathering of overburden from a gold mine.	161
16:45-17:00	J Buckley, F Gassner, W Gates and D Gibbs  Forensic examination of field GCL performance in landfill capping and mining containment applications.	165
17:00-17:15	G Churchman, J Anderson and E Dunlop  Clay-based materials for the control and removal of oil spills.	169
17:15-17:30	Discussion on session	
17:45	Australian Clay Minerals Society Annual General Meeting Owen J Wordsworth Room	
19:30	ACMS Dinner – all welcome	

## Sunday 8<sup>th</sup> August

ACMS Field Trip departs QUT 7:30am Leader: Will Gates 7:30