



GREEN MINING
CONFERENCE 2016

Conference Program

THE 9TH INTERNATIONAL SYMPOSIUM ON GREEN MINING
27 - 30 NOVEMBER | WOLLONGONG, AUSTRALIA

ORGANISED BY

Centre for Infrastructure Protection
& Mining Safety
University of Wollongong

State Key Laboratory of Coal
Resources & Safe Mining
China University of Mining & Technology



UNIVERSITY
OF WOLLONGONG
AUSTRALIA



Notes

Organising Committee

Chair

- Professor Shirong Ge, China University of Mining and Technology (CUMT), China
- Professor Chris Cook, University of Wollongong (UOW), Australia
- Professor Linming Dou, CUMT
- Professor Katina Michael, UOW

Executive Chair

- Associate Professor Ting Ren, UOW
- Professor Jialin Xu, CUMT
- Associate Professor Alex Remennikov, UOW
- Professor Zhenfu Luo, CUMT

Members

- Associate Professor Ernest Baafi, UOW
- Professor Yidong Zhang, CUMT
- Professor Jerry Tien, Monash University
- Dr Jan Nemcik, UOW
- Professor Abouna Saghafi, UOW
- Associate Professor Paul Hagan, University of New South Wales
- Ms Justine Calleja, UOW
- Mr David Walker, UOW
- Dr Guang Xu, Curtin University
- Associate Professor Lei Zhang, CUMT
- Associate Professor Michael Tuck, Federation University Australia
- Dr Tao Yu, UOW
- Dr Qingdong Qu, CSIRO
- Associate Professor Mehmet Kizil, University of Queensland
- Professor Jianping Wei, Henan Polytechnic University
- Professor Juan Han, Liaoning Technical University
- Professor Weiguo Liang, Taiyuan University of Technology
- Dr Zhongwei Wang, UOW
- Dr Frank Hungerford, UOW

Event Coordinators

- Mr Jian Zhang, UOW
- Ms Ashleigh Dewar, UOW
- Mr Honggang Liu, CUMT
- Dr Jianlin Xie, CUMT
- Mr Patrick Booth

Day 1 | Sunday 27 November 2016

NOVOTEL NORTH BEACH, 2-14 CLIFF RD, NORTH WOLLONGONG NSW 2520

6:30PM

Welcome Reception and Registration – Novotel Northbeach Wollongong

Day 2 | Monday 28 November 2016

BUILDING 21 ROOM G08, UNIVERSITY CAMPUS, UNIVERSITY OF WOLLONGONG

2016 International Workshop on Coal and Rock Burst

8:00AM

Workshop Registration

Session 1

Associate Professor Ting Ren and Ms Justine Calleja, University of Wollongong

8:30AM

Opening: Burst Research – ACARP Perspective
James Sandford, Glencore and ACARP

Burst incidents in Chinese Coal Mines – Case studies,
Professor Linming Dou and A/ Professor Anye Cao, CUMT, China

Mining seismicity and the role of real time seismic monitoring for rockburst risk management - Part I,
Dr Aleksander Mendecki, Institute of Mine Seismology, Australia

Burst Incident at Astar Mine: a Summary:
Professor Bruce Hebblewhite, UNSW Australia

10:30AM

Morning Tea Break

Session 2

Professor Bruce Hebblewhite, UNSW

Theory, technology and system standards of burst in China,
Professor Qingxin Qi, China Coal Research Institute, China

Rockbursts in hard coal longwall mining and its prevention in the Czech Republic,
Dr Petr Konicek, IG, Czech Academy of Sciences, Czech Republic

Seismic risk management plans for rockburst in the Australian hard rock mining industry,
Peter Hills, Pitt and Sherry

Diagnostic criteria for rockburst of coal,
Ms Justine Calleja, University of Wollongong

12:45PM

Lunch Break - Communication Centre Foyer

Day 2 | Monday 28 November 2016

BUILDING 21 ROOM G08, UNIVERSITY CAMPUS, UNIVERSITY OF WOLLONGONG

Session 3 Professor Jim Gavin, UNSW

Regional mapping of burst risk in Chinese coal mines,
Professor Hongwei Zhang, Liaoning Technical University, China

Latest ACARP research outcomes for coalburst in Australia,
Professor Ismet Canbulut UNSW

Rockburst monitoring, forecasting, and prevention in coal mining in China,
Professor Linming Dou and Associate Professor Siyuan Gong, CUMT, China

Burst Incident at Astar Mine: a Summary:
Professor Bruce Hebblewhite, UNSW Australia

3:30PM

Afternoon Tea Break

Session 4 Justine Calleja, UOW

Coalburst risk management at Appin Mine,
Mr Brad Elvy, South32

Mining seismicity and the role of real time seismic monitoring for rockburst risk management - Part II,
Dr Aleksander Mendecki, Institute of Mine Seismology, Australia

Study on formation mechanism of anticline structure and its Disaster Mechanism of Rock Burst,
Associate Professor Shitan Gu, Shandong University of Science and Technology, China

4:30PM

Discussions and Questions

5:00PM

Workshop Closing

Professor Linming DOU (CUMT) and Associate Professor Ting Ren (UOW)

Day 3 | Tuesday 29 November 2016

LECTURE HALL 1

COMMUNICATION CENTRE, BUILDING 20, UNIVERSITY OF WOLLONGONG

The 9th International Symposium on Green Mining

8:00 - 9:00AM Delegate Registration

Session 1 Official opening and keynote presentations
Session Chair: Associate Professor Ting Ren, University of Wollongong

9 AM	<p>Official Opening <i>Professor Judy Raper, Deputy Vice-Chancellor, University of Wollongong</i> <i>Professor Shirong GE, President, China University of Mining and Technology, China (by video link)</i></p>
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Keynote: The critical role of risk management in ground engineering and opportunities for improvement,
Emeritus Professor Jim Galvin, University of New South Wales

Keynote: Green Mining Theory and Practice, a Chinese Perspective,
Professor Jialin Xu, China University of Mining and Technology

Keynote: Coal mine methane management and utilisation in Australia
Mr James Sandford, Group Manager – Underground Projects, Glencore Coal Assets Australia

10:40 - 11:00AM Morning Tea Break – Communication Centre Foyer/Group Picture

Session 2 Mine Geomechanics
Session Chair: Professor Bruce Hebblewhite, UNSW and Professor Yidong Zhang, CUMT

	<p>Keynote: Strata control and roadway support in underground coal mine design - an Australian Perspective, <i>Dr Winton Gale, Strata Control Engineering, Australia</i></p>
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Remediation of abandoned mines using fly ash backfill,
Dr Baotang Shen, Group Leader CSIRO Energy

Mechanisms of Aquifer Protection in Underground Coal Mining,
Associate Professor Gangwei Fan, China University of Mining and Technology

3D Laser scanning of underground roadway monitoring and control in deep mines,
Dr Radovan Kukutsch, IGM, Czech Academy of Sciences, Czech Republic

Mechanism analysis on the stability of roadway driven along goaf affected by main roof in fully mechanized caving face,
Professor Shugang Li, Xi'an University of Science and Technology

12:40 - 1:40PM Lunch Break - Communication Centre Foyer

Day 3 | Tuesday 29 November 2016

LECTURE HALL 1

COMMUNICATION CENTRE, BUILDING 20, UNIVERSITY OF WOLLONGONG

<i>Session 3 Coal Mine Gas Management and Mitigation</i> <i>Session Chair: Professor Abouna Saghafi, UOW and Dr Lei Zhang, CUMT</i>	
	Progress on the hydraulic measures for grid slotting and fracking to increase the permeability of coal seam, <i>Professor Yiyu LU, Chongqing University, China</i>
	Coal Seam Gas Predrainage Optimisation, <i>Mr Mark Blanch, Principal – Gas Management Solutions, Palgas</i>
	Experimental study on the influence of injecting water to CBM exploitation, <i>Associate Professor Xiangjun Chen, Henan Polytechnic University, China</i>
	Determination of gas content and uncertainty of measurement, <i>Dr Abouna Saghafi, Visiting Professor, UOW</i>
	CFD simulations for longwall gas drainage design optimisation, <i>Dr Johnny Qin, CSIRO</i>
3:10 - 3:30PM	Afternoon Tea Break - Communication Centre Foyer
<i>Session 4: Mine Safety and Environment</i> <i>Session Chair: Associate Professor Alex Remennikov and Professor Yiyu LU, Chongqing University</i>	
	Method for prevention and control of spontaneous combustion of coal seam and its application in mining field <i>Professor Jerry Tien, Monash University</i>
	Mitigating Fugitive Greenhouse Gas Emissions Safely and Cost-Effectively, <i>Associate Professor Michael Tuck, Federation University, Australia</i>
	A Review of the Health Effects and Exposure-Responsible Relationship of Diesel Particulate Matter for Underground Mines, <i>Dr Guang Xu, Curtin University</i>
	Improving sustainable mine waste management practices at a mineral sands mine containing significant clay contaminants, <i>Mr James Cowin, Thiess Pty Ltd and Mr Ray Tolhurst, UOW</i>
	Relationship of Water Inrush from Coal Seam Floor and Main Roof Weighting of Stope <i>Associate Professor Jian Sun, Anhui University of Science and Technology</i>
4:45 - 5:00PM	Close - Communication Centre Foyer
6:30PM	Conference Dinner

Day 4 | Wednesday 30 November 2016

LECTURE HALL 1

COMMUNICATION CENTRE, BUILDING 20, UNIVERSITY OF WOLLONGONG

Session 5: Mine Automation and Intelligent System

Session Chair: Professor Jerry Tien, Monash University and Professor Changyou Liu, CUMT

9 AM

Keynote: Automation and innovation of mining equipment - Hybrid electric LHD and the DynaCut hard rock continuous mining system,

Mr Brad Neilson – President-Hard Rock Mining, JOY GLOBAL

Mine Automation: current status, challenges and opportunities,

Dr Jonathon Ralston, Principal Research Engineer, CSIRO Energy Flagship

The Significance of the Visualization of Big Mining Data for Safe and Productive Mine Management,

Mr Grahame Cover – CEO of URSYS Pty. Limited and Professor Zhen Yang, CUMT and UOW

Development and application of an Integrated Dry Coal Processing Solution - iDCPs,

Mr Colin Donegan, CAMDA

Virtual reality technology application and direction by NSW Mines Rescue,

Mr Steve Tonegato State Operations Manager, Coal Services

10:40 - 11:00AM

Morning Tea Break – Communication Centre Foyer/Group Picture

Session 6: Mining Method and Ground Control

Session Chair: Dr Yan Nemcik, UOW and Professor Wenhua Zha, Anhui University of Science and Technology, China

Experimental Research on Temperature Field during Sandstone Crack Development—A Case Study of Mode-I Crack of Flatten Brazilian Disk Specimen,

Professor Liqiang Ma, China University of Mining and Technology

Yielding characteristic of coal pillar during room and pillar extraction at the great depth,

Dr Petr Wactlawik, IGZ, Czech Academy of Sciences, Czech Republic

Development of a Hybrid Fibre-Reinforced Polymer (FRP) support system for underground working,

Dr Tao Yu, University of Wollongong

Study on the theory and technologies of short-wall mining and continuous back-filling,

Associate Professor Xinguo Zhang, Shandaong University of Science and Technology, China

Experiment Study of Rock Softening Characteristic under Different Moisture Content

Professor Guichen LI, CUMT

12:40 - 1:40AM

Lunch Break - Communication Centre Foyer

Day 4 | Wednesday 30 November 2016

LECTURE HALL 1

COMMUNICATION CENTRE, BUILDING 20, UNIVERSITY OF WOLLONGONG

Session 7: Coal Mine Gas Drainage

Session Chair: Dr Dennis Black, PacificMGM and UOW and Professor Gui-chen Li, CUMT

Gas drainage practices and in-seam drilling beyond 2000m at Metropolitan Colliery,
Mr Wayne Green, Metropolitan Colliery, Peabody Energy Australia

Direct determination of coal seam gas content with underground borehole cuttings,
Dr Sheng Xue, Group Leader, CSIRO

The potential for failure during gas drainage from coal
Dr Luke Cornnell, Team Leader, CSIRO

Evaluation investigation of gas drainability of CO₂ of gas drainability for an outburst-prone and
high-CO₂-containing coal seam,
Associate Professor Lei Zhang, China University of Mining and Technology

Spatial distribution of gob permeability and its application to the numerical calculation of abandoned gob
methane drainage,
Dr Wei Qin, China University of Mining and Technology

3:10 - 3:30 PM

Afternoon Tea Break - Communication Centre Foyer

Session 8: Mine Outburst and Burst

Session Chair: Mr James Sandford, Glencore and Professor Jialin Xu, CUMT

Investigations into the identification and control of outburst risk in Australian underground coal mines,
Dr Dennis Black, UOW and PacificMGM

Bursting strain energy: A new microseismic method for rock burst early warning,
Dr Wu Cai, CUMT

Mechanism of Rock Burst Induced by Fault Slip in an Island Coal Panel and Hazard Assessment by Seismic
Tomography: A Case Study from Xuzhuang Colliery, Xuzhou, China -
Associate Professor Anye Cao, China University of Mining and Technology

The undesorbable residual gas in coal seams and its influence on gas drainage
Dr Gongda Wang, University of Wollongong

5:00 PM

Official Symposium Close: Professor Xu Jialin and Associate Professor Ting Ren,
Conference Chair ISGM2016

Post Conference Activities

GROUP ONE

VISIT TO COAL SERVICES

Depart: Thursday 1st December at 9:00am | Novotel Hotel

Cost: Free to all symposium delegates

Numbers: Maximum 15

Book: Please contact: 9th ISGM6 Secretariat

Note: Visit is subject to final confirmation

Address: Woonona NSW 2517

Proudly sponsored by:



GROUP TWO

VISIT TO METROPOLITAN MINE

Depart: Thursday 1st December at 9:00am | Novotel Hotel

Cost: Free to all symposium delegates

Numbers: Maximum 15

Book: Please contact: 9th ISGM6 Secretariat

Note: Visit is subject to final confirmation

Clothing: Participants to wear a long sleeved shirt, long pants and enclosed shoes

***limited to 15 visitors, subject to final confirmation**

Social Programs

Welcome Reception



Venue

Novotel Wollongong Northbeach

Address

2 - 14 Cliff Road North Wollongong 2500

Time

Sunday 27th November 2016 at 6:30PM

Cost

Complimentary for all delegates
Guests \$50 per person

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Conference Dinner



Venue

Novotel Wollongong Northbeach

Address

2 - 14 Cliff Road North Wollongong 2500

Time

Tuesday 29th November 2016 at 6:30PM

Cost

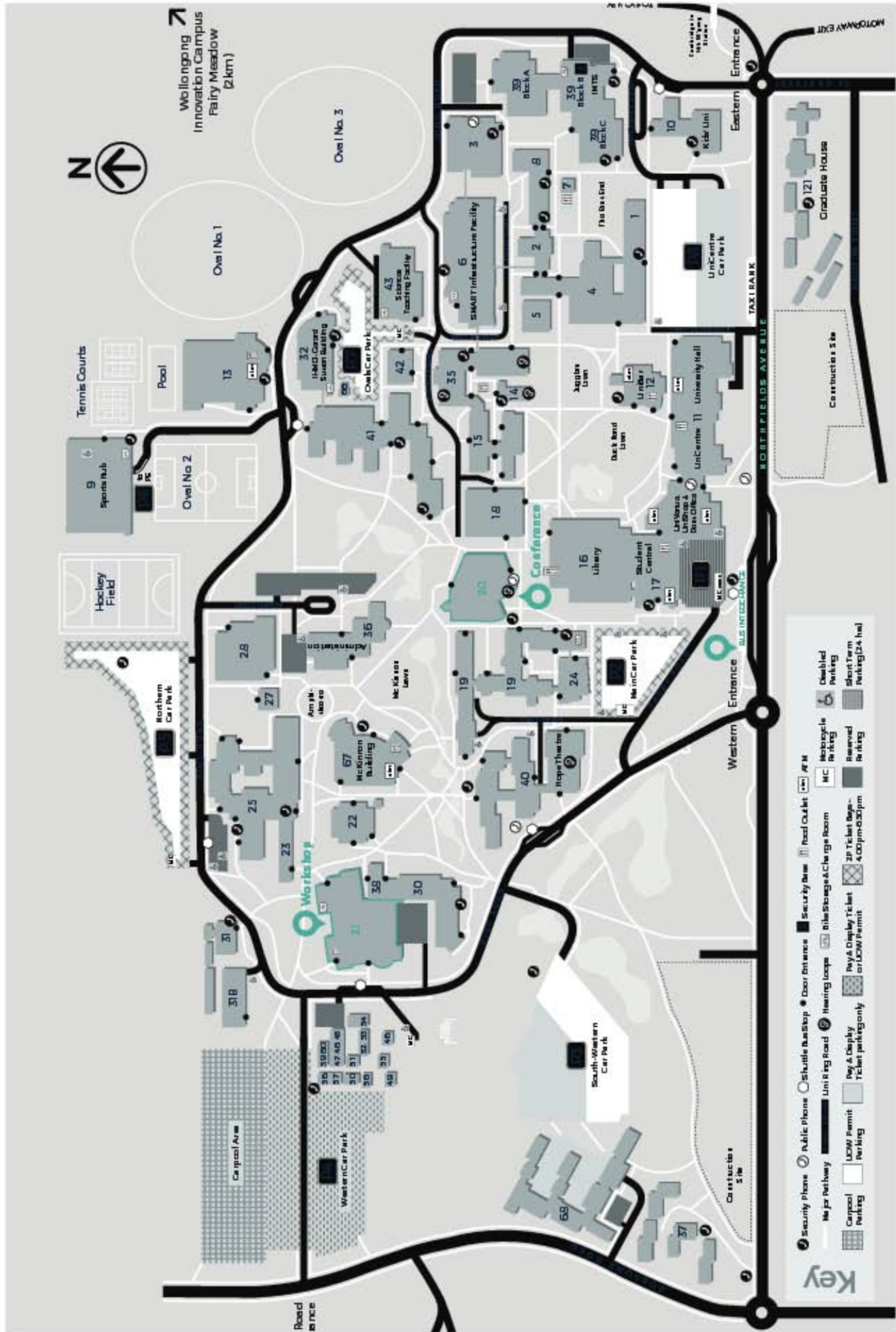
Complimentary for all delegates
Guests \$120 per person

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University of Wollongong Campus Map



Wollongong - 55A / 55C Free Shuttle Bus



Key

- Free Shuttle Bus stops
 - ★ Places of interest
 - T Train station
 - X Stop name reference
 - Weekend service only
- See individual mode network maps for destinations served

Free shuttle

Service times and frequency

Monday to Friday
 07:00 to 18:00
 services every 10 minutes
 18:00 to 22:00
 services every 20 minutes

Saturday, Sunday and Public Holidays
 08:00 to 18:00
 services every 20 minutes

Stop names

- 1 University of Wollongong
- 2 TAFE
- 3 Wollongong & Keira High Schools
- 4 Princes Hwy, Fairy Meadow
- 5 Princes Hwy, Elliotts Rd
- 6 Cnr Elliotts Rd & Squires Way
- 7 University of Wollongong Innovation Campus
- 8 Bourke St (Novotel)
- 9 Gipps St, Georges Pl
- 10 Wollongong Harbour
- 11 Corrimal St, Smith St
- 12 WIN Entertainment Centre WIN Stadium (Sage)
- 13 Burelli St
- 14 Keira St, Crown St
- 15 Wollongong Station
- 16 Wollongong Hospital
- 17 Greenacre Rd, Bligh St
- 18 Foley St
- 19 North Wollongong Station

Useful Information

General

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UOW *02 4221 3491*

EMERGENCY *000*

TOURISM WOLLONGONG *1800 240 737 tourismwollongong.com*

Conference Contacts

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Co-Organisers

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