

## Bristol ChemLabS Outreach Involvement in Perth, Western Australia

Bristol ChemLabS has been working for several years with Australian chemist, Dr Magdalena (Magda) Wajrak, Chemistry Lecturer at Edith Cowan University (Perth) in the provision of a spectrum of outreach activities.

Tim Harrison has visited ECU on three occasions (November 2014-6) to help deliver science teacher and technician training in practical chemistry 'hands-on' courses at ECU and to deliver the several performances from the suite of lecture demonstrations collectively entitled 'A Pollutant' Tale'. On the most recent visit lectures were given to 300+ aboriginal students from the Perth area under a project called 'Old Ways New Ways' the lecture was introduced by two of ECU's pro-vice chancellors and by the Science Advisor for Western Australia.

Other collaborative outreach activities have seen Harrison deliver lectures on the topic of chemistry outreach for the and in the joint authorship of a book on practical chemistry<sup>1</sup> with Wajrak as well as articles<sup>2</sup> aimed at Post 16 students and their teachers in the UK and Europe.

Commenting on the recent visit Dr Magda Wajrak, an Australian national award winning chemistry lecturer, said "Mr Harrison's visit to ECU was highly successful and had a profound impact, in particular on the laboratory technicians and teachers who attend the half day hands-on workshop. They were all very impressed with the quality of Tim's presentation, his wealth of knowledge with regard to chemical demonstrations and his approach to teaching and learning processes. We received 25 written feedback comments from these workshops and the main theme of these comments was that everyone agreed the workshop provided them with very useful ideas for new chemical demonstrations and how to implement those in teaching atmospheric and climate change chemistry and they all wanted more of such workshops in the future.

All participants commented that they would be highly interested in attending another such workshop, but a whole day session, so that they would be able to try out more experiments and have more opportunities to talk to Tim. Based on the responses we had from the workshops and seminars that Tim presented in 2010, I am very eager to bring Tim back to WA, hopefully this year or early next year and give more lab technicians and teachers the opportunity to experience these workshops and thus increasing the impact of Tim's expertise in WA High School community.

My collaboration with Tim for the past three years has had a substantial impact on my teaching of chemistry and my outreach activities. I have already implemented chemistry DLM into two of my chemistry units, 1st year General Chemistry and 2nd year Organic Chemistry and next year I plan to implement biological DLM into forensic science unit. I have also implemented some of Tim's chemical demonstrations into my 'Magical World of Chemistry' Show, which I present at various schools around WA with credit given to Tim Harrison from Bristol University UK. In addition, just last week I have been approached by Cengage Learning Publisher, who is interested in publishing the 'Chemical Demonstrations' Booklet that Tim and I are currently in the process of finalising. The plan is to publicise this book in all Australian High Schools and of course UK.

I am looking forward to my future collaboration with Tim Harrison."

### Examples of comments from the technician workshop attendees:

Some of the comments received from workshop participants when asked; What were the best aspects of the workshop with regard to the contents and why?

*The fact that safety and cleaning-up was addressed and that there was a lot of hands on activities not just observations. (Mercedes College)*

*Workshop was hands-on, very high quality and had relaxed atmosphere. (Presbyterian Ladies College)*

*The amount of time that was given for us to actually do the demos ourselves. Normally when you go to a workshop, time to actually do things in the lab is minimal so you only get to do a couple of things, the time you gave us to actually “play” was sufficient for us to do every single demo for ourselves. (Carmel High School)*

*Tim was an entertaining presenter. Housekeeping was direct, as it should be. It worked well with the demonstrations being held first, with the opportunity to trial the demos after. (Mercy College)*

*Was able to try out some new demonstrations that I have never seen before, like thermoactive paints and polymorphic plastic. Will definitely introduce some of these demonstrations into our chemistry units. (Southwell Lake High School)*

*I think the content where Tim explained the concepts and applications of some of the demo's shown. (Baptise College)*

*Plenty of hands-on with encouraging supervision. (Ellenbrook Christian College)*

*The content was brilliant, it was useful in incorporating the different experiments into all levels of learning as well as being hands on which enabled us to see and make the mistakes ourselves before letting the kids have a go. (LaSalle College)*

#### 1Book

Wajrak M. and Tim Harrison T.G. (2013), 'Chemical Demonstrations', Cengage Learning (Australia).

#### 2Articles

Magdalena Wajrak, Barium, (2016). Chemistry Review, 25(4), pp.30- 32 (edited by Tim Harrison).

Harrison T.G. and Wajrak M (2015). Investigating blood types, Science in School, (Vol 32) pp33-36.

Magdalena Wajrak, Arsenic Poisoning (2011). Chemistry Review, Volume 21(2). (edited by Tim Harrison).

## Unsolicited Feedback

Dear Mr Harrison

*My name is Christian Jensen, I am a Year 7 student from Joseph Banks Secondary College. I was one of the lucky students to attend your presentation on the 26th of November 2015 at the ECU campus in Joondalup.*

*I was paying attention the whole time and I thought that your presentation was very inspiring. We started learning about chemistry at school a few weeks ago and I have been making lots of notes and talking to my father about what I've been learning. Chemistry is really interesting.*

*You also had some awesome demonstrations. I particularly liked the liquid nitrogen tank, and how you hammered the nails into the wood with a frozen banana. Changing the properties of an object to do new things is really cool.*

*I plan to attend ECU for my university education and I might just do a degree on chemistry.*

*Thank you so much! Sincerely, Christian Jensen*

## Appendix

### Tim Harrison's Visit Summary (20.11.15 – 29.11.15)

Outreach Program Details:

<b>Date and Time</b>	<b>Location</b>	<b>Purpose</b>	<b>Number of Participants and Where they came from</b>
26.11.15 (12.30pm – 2.00pm)	ECU – 32.101	Chemical demonstrations show to primary and high school kids that Jason and I visited this year, but also other schools. WA Chief Scientist + DVC of Teaching and Learning, DVC of Research and DVC of Equity and Indigenous and Engagement staff.	360 students from Merriwa Primary School, Balga High School, Girrawheen High School, John Banks High School.
26.11.15 (7pm – 9.30pm)	Royal Bar	Dinner with WA Chief Scientist and DVC of Equity and Indigenous and Jason Barrow and Caroline Bishop.	
24.11.15 (5.30pm – 7.30pm)	Curtin Uni	"Outreach at University of Bristol", RACI seminar.	About 15 RACI members and chemistry students attended.
24.11.15 (10am – 3pm)	ECU-19.227	PD Workshop for science lab technicians and science teachers from high schools and primary schools. Aim of the workshop was to expose teachers and lab technicians to new chemical demonstrations which could potentially be used in chemistry curriculum.	34 lab technicians and science teachers from various schools around WA from as far as Mandurah (see attached list for all the schools).
27.11.15 (9.30am – 1.30pm)	Butler High School, Butler	Two lecture demonstration by Tim Harrison to show students some interesting chemical reactions and enthuse them about chemistry.	First session had about 30 year 10 students with 3 teachers and second session had about 120 years 8 and 9 students and 5 teachers.

**Proposed Future Visit in November 2016 (21.11.16 – 25.11.16)**

1. PD workshop for science teachers and lab technicians, the ones that have not done it this year (1 day for 2hrs – 10am till 12pm, then lunch 12pm till 1pm, 1pm – 3.00pm)
2. Large lecture presentation in 32.101, two per day for 3 days (target years 5,6,7 one day then 8,9, 10 the second day and then females only the third day)
3. Possible seminar on 'Successful Universities –Schools Engagement' by Tim Harrison, aimed at VC, DVCs, marketing and engagement people.

## Feedback Press Release ECU Perth 2015

From:

<https://www.ecu.edu.au/community-engagement/industry-community-education/education-engagement/tim-harrison-science-extravaganza>

### Tim Harrison Science Extravaganza

More than 350 primary and secondary students visited ECU's Joondalup campus on Thursday, 26 November 2015 for a science extravaganza featuring renowned UK science communicator Tim Harrison.

As part of ECU's award-winning science outreach programme Old Ways, New Ways, students were treated to Mr Harrison's 'Gases in the Air' presentation, a dazzling array of explosive science experiments and demonstrations.

As the Director of Outreach, Science Communicator in Residence and ChemLabS School Teacher Fellow at Bristol University, Mr Harrison has a long history of delivering exciting chemistry demonstrations to enthuse and amaze students and teachers alike.

Other special guest speakers at the Science Extravaganza included Chief Scientist of Western Australia Professor Peter Klinken, ECU Deputy Vice-Chancellor (Teaching and Learning) Professor Ron Oliver, and ECU Cultural Ambassador Jason Barrow.

The day was also supported by ECU Vice-Chancellor Professor Steve Chapman, who provided a pizza lunch which was well received by students.

Participating schools included Balga Senior High School, Girrawheen Senior High School, Joseph Banks Secondary College, Balga Primary School and Merriwa Primary School.

Student feedback on the Science Extravaganza was enthusiastic, with Mr Harrison receiving loud cheers and thunderous applause.

One student was so inspired by the experience, he wrote to Mr Harrison on the same day of the event to thank him for opening his mind to pursuing a career in science.

In addition to the Science Extravaganza, Mr Harrison undertook two professional development sessions for primary and high school teachers, and delivered talks at Curtin University and the University of Western Australia.

The Tim Harrison Science Extravaganza was supported by ECU's Engagement Unit, which facilitates initiatives aimed at raising aspirations for primary and secondary students to attend tertiary education. If you are interested in getting involved with ECU Engagement, please contact us at [engagement@ecu.edu.au](mailto:engagement@ecu.edu.au) or on (08) 6304 2652.