

Andrew Ballantyne  
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## Biography

Originally trained in Chemistry at the University of Manchester Institute for Science and Technology (UMIST), I have been involved in research into Green Chemistry and Sustainability since starting my PhD at the University of Manchester in 2004, studying The Synthesis and Physical Properties of Hydrophobic Ionic Liquids with Professor Robert Dryfe and Dr Alan Brisdon.

After completing my PhD in 2008, I joined the groups of Professor Andrew Abbott and Professor Karl Ryder at the University of Leicester where I was a Post-Doctoral Research Associate studying the application of Deep Eutectic Solvents into a diverse range of applications including starch bioplastics, metal coatings for electronics and engineering applications and solder fluxes. During this time I was able to publish widely regarding the applications of deep eutectic solvents and was named on two patent applications.

In 2017 I joined Imperial College London, again on a Post-Doctoral position, working for Professor David Payne. During this time I was the co-inventor for a novel approach to the recycling of lead paste from spent lead acid batteries, a technology which has led to a patent and the formation of a spin-out company, Solveteq, to which I am a scientific advisor.

I joined the Institute for Creative Leather Technologies in November 2017 as a Senior Lecturer and have proceeded to be engaged in activities relating to both teaching and research in leather manufacture. I am program leader for the PGCert in Leather Finishing - Automotive, which is run in collaboration with our partners Stahl in The Netherlands. In addition, I lead modules into all aspects of leather manufacturing, with a particular interest in sustainable leather development.

## Employment

### Associate Professor in Leather Technology

Fashion & Leather Technology  
University of Northampton  
1 Feb 2024 → 19 Apr 2024

### Centre for Sustainable Futures

6 Jul 2022 → present

### Institute for Creative Leather Technologies

27 Nov 2017 → present

## Research outputs

### There's something fishy going on! Sustainable exploitation of waste skins from the fishing sector

Ballantyne, A. & Lama, A., 23 May 2023

### Effect of graphene oxide and temperature on electrochemical polymerization of pyrrole and its stability performance in a novel eutectic solvent (choline chloride-phenol) for supercapacitor applications

Ismail, H., Qader, I., Alesary, H., Kareem, J. & Ballantyne, A., 27 Sept 2022, In: ACS Omega. 7, 38, p. 34326-34340 15 p.

### Influence of different concentrations of nicotinic acid on the electrochemical fabrication of copper film from an ionic liquid based on the complexation of choline chloride-ethylene glycol

Ballantyne, A., Alesary, H., Ismail, H., Odda, A. H., Watkins, M., Majhool, A. A. & Ryder, K., 1 Sept 2021, In: Journal of Electroanalytical Chemistry.

### **Recycling of lead and tin based materials**

Ballantyne, A., 6 Feb 2020, Patent No. WO 2020/025970 A1, 2 Aug 2018

### **Environmentally Sustainable Solvent-based Process Chemistry for Metals in Printed Circuit Boards**

Ryder, K. S., Ballantyne, A., Palin, E. J. R., Smith, E. L. & Abbott, A., 9 Sept 2019, *Electronic Waste Management 2nd edition*. 2 ed. Royal Society of Chemistry, p. 278-312 34 p. (Issues in Environmental Science and Technology; vol. 49).

### **Modelling the charge across pH and isoelectric point of bovine collagen during leather manufacture**

Ballantyne, A. & Davis, S., Jul 2019, p. 1-10. 10 p.

### **Sulfide unhairing: Rethinking the received wisdom: Keynote Lecture**

Wise, W. R., Ballantyne, A. D. & Covington, A. D., 24 Jun 2019, p. 53-57. 5 p.

### **Influence of additives on the electrodeposition of zinc from a deep eutectic solvent**

Ballantyne, A., Alesary, H., Cihangir, S., Harris, R., Weston, D. & Abbott, A., 1 May 2019, In: *Electrochimica Acta*. 304, p. 118-130 13 p.

### **Electrochemical deposition of silver and copper from a deep eutectic solvent studied using time-resolved neutron reflectivity**

Ballantyne, A. D., Barker, R., Dalgliesh, R. M., Ferreira, V. C., Hillman, A. R., Palin, E. J. R., Sapstead, R., Smith, E. L., Steinke, N-J. & Ryder, K. S., 15 Jun 2018, In: *Journal of Electroanalytical Chemistry*. 819, p. 511-523 13 p.

### **Lead acid battery recycling for the twenty-first century**

Ballantyne, A. D., Hallett, J. P., Riley, D. J., Shah, N. & Payne, D. J., 16 May 2018, (E-pub ahead of print) In: *Royal Society Open Science*. 5, 5, p. 1-12 12 p.

### **Real-time in situ dynamic sub-surface imaging of multi-component electrodeposited films using event mode neutron reflectivity**

Hillman, A. R., Barker, R., Dalgliesh, R. M., Ferreira, V. C., Palin, E. J. R., Sapstead, R. M., Smith, E. L., Steinke, N-J., Ryder, K. S. & Ballantyne, A. D., 2018, In: *Faraday Discussions*. 210, p. 429-449 21 p.

### **Bright Metal Coatings from Sustainable Electrolytes: The Effect of Molecular Additives on Electrodeposition of Nickel from a Deep Eutectic Solvent**

Ballantyne, A., Abbott, A., Harris, R., Juma, J. & Ryder, K. S., 6 Jan 2017, In: *Physical Chemistry Chemical Physics*. 19, 4, p. 3219-3231 12 p.

### **Solder Flux**

Ryder, K. S., Ballantyne, A., Zaleski, C. & Harris, R., 10 Dec 2015, Patent No. WO 2015/185946 A1, 5 Jun 2015, Priority date 6 Jun 2014, Priority No. 1410093.7

### **Electrochemistry and speciation of Au(+) in a deep eutectic solvent: growth and morphology of galvanic immersion coatings**

Ballantyne, A., Forrest, G., Frisch, G., Hartley, J. & Ryder, K. S., 27 Oct 2015, (E-pub ahead of print) In: *Physical Chemistry Chemical Physics*. 17, 45, p. 30540-30550 11 p.

### **A Comparative Study of Nickel Electrodeposition Using Deep Eutectic Solvents and Aqueous Solutions**

Ballantyne, A., Abbott, A., Harris, R., Juma, J., Ryder, K. S. & Forrest, G., 18 Jul 2015, (E-pub ahead of print) In: *Electrochimica Acta*. 176, 10, p. 718-726 9 p.

### **Removal of casting defects from CMSX-4® and CMSX-10® alloys by electropolishing in a novel electrolyte: Deep Eutectic Solvent**

Ballantyne, A., Dsouza, N., Appleton, M., Cook, A., Harris, R. & Ryder, K. S., 29 Aug 2014, p. 1-7. 7 p.

### **Salt modified starch: Sustainable, recyclable plastics**

Abbott, A. P., Ballantyne, A., Palenzuela, J., Ryder, K. S. & Wise, W., May 2012, In: *Green Chemistry*. 14, 05, p. 1302-1307 6 p.

**Advanced surface protection for improved reliability PCB systems (ASPIS)**

Ballantyne, A., Forrest, G., Goosey, M., Griguceviciene, A., Juodkazyte, J., Kellner, R., Kosenko, A., Ramanauskas, R., Ryder, K., Selskis, A., Tarozaite, R. & Veninga, E., 3 Feb 2012, In: Circuit World. 38, 1

**Do all ionic liquids need organic cations? Characterisation of [AlCl<sub>2</sub>nAmide]<sup>+</sup> AlCl<sub>4</sub> and comparison with imidazolium based systems**

Ballantyne, A., Abbott, A., Ryder, K. S. & Abood, H., 8 Feb 2011, In: ChemComm. 47, p. 3523-3525 3 p.

**New polysaccharide-based materials**

Ballantyne, A. & Abbott, A., 29 Jun 2010, Patent No. US 2012/0122997 A1, 29 Jun 2010, Priority date 29 Jun 2009, Priority No. 0911172.5

**Potato packaging**

Abbott, A. & Ballantyne, A., 1 Nov 2009, In: Education in Chemistry.

**Immiscible electrolyte systems based on asymmetric hydrophobic room temperature ionic liquids**

Ballantyne, A. D., Brisdon, A. K. & Dryfe, R. A. W., 10 Sept 2008, In: Chemical Communications. 40

**Press/Media****The European Angle**

Andrew Ballantyne

13/03/24

1 item of Media coverage

**University of Northampton: Associate Professors 2023-2024**

Tatiana Gherman & Andrew Ballantyne

20/01/24

1 item of Media coverage

**Northampton awards Associate Professor title to Andrew Ballantyne**

Andrew Ballantyne

8/09/23

1 Media contribution

**Northampton awards Associate Professor title to Andrew Ballantyne**

Andrew Ballantyne & Anne Lama

8/09/23

1 item of Media coverage

**Ariapita Social Club**

Andrew Ballantyne

15/08/22

1 item of Media coverage

**US Patent Issued to UNIVERSITY OF LEICESTER on Nov. 17 for "Solder flux" (British Inventors)**

Andrew Ballantyne

18/11/20

1 item of Media coverage

**Australian Patent Office Grants Patent for 'Solder flux'**

Andrew Ballantyne

28/08/20

1 item of Media coverage

**MICROECONOMICS A VERY SHORT INTRODUCTION BY AVINASH DIXIT**

Cathy Smith & Andrew Ballantyne

2/07/20

1 item of Media coverage

**Australia: University of Leicester Receives Patent for 'Solder flux'**

Andrew Ballantyne

3/05/20

1 item of Media coverage