

# ATOMIZATION FOR METAL POWDERS

## 7th and 8th March 2019



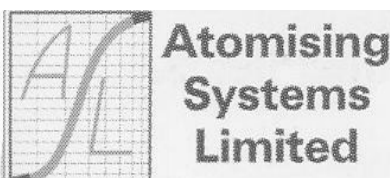
### Programme

#### Thursday 7th March

- 9.00 Registration
- 9.55 Introduction to Atomization
- 10.30 Fundamentals of Liquid Atomization
- 11.20 Historical Perspective
- 12.00 Fundamentals of Melt Atomization
- 12.50 Lunch
- 13.35 Screen Analysis and Data Interpretation
- 13.55 Gas Atomization
- 15.30 Water Atomization
- 16.55 Rotary, Ultrasonic & Other Techniques-I
- 17.30 End of Session

#### Friday 8th March

- 8.45 Rotary, Ultrasonic & Other Techniques-II
- 9.25 Measurement Techniques
- 10.25 Additive Manufacturing
- 10.55 Ancillary Equipment
- 11.55 Operation and Economics of Plant
- 12.25 Lunch
- 13.05 Powder Characterisation for Powder Metallurgy
- 13.40 Needs of Different Metals
- 14.45 Toolkit for Atomizing System Improvement
- 15.30 End of Course



### COURSE LECTURERS

John J Dunkley [Chairman], Dirk Aderhold [Technical Director] & Tom Williamson (Research Engineer), all of Atomising Systems Ltd; Rajeev Dattani [Applications Specialist, Freeman Technology, Gloucester], Andrew J Yule [Emeritus Professor of Mechanical Engineering, University of Manchester]: *Coauthors of Atomization of Melts (AJY & JJD) Oxford University Press, and Industrial Sprays and Atomization (AJY) Springer Verlag.*

### COURSE STRUCTURE

This intensive course in Central Manchester (UK) includes sessions covering the main methods of atomizing metals, specific requirements for different metals, the design, operation and economics of plant, additive manufacturing, measurement methods and an overview of modelling and prediction techniques. Lunches and refreshments, printed notes and a DVD containing the course material, are included. Registrants have opportunities to discuss their interests with the course presenters and the presenters tailor their presentations to optimise their relevance to registrants.

### ATOMISING SYSTEMS LTD ([www.atomising.co.uk](http://www.atomising.co.uk))

ASL specialises in the technology of powder or granule production by the atomisation of melts. Established in 1992, the company and its founder have 35 years experience of the technology and have delivered more than 130 plants for metal powder atomisation in 35 countries in six continents. ASL operates 4 different atomisers for industrial powder production and this experience informs the course presentations.

### PERDAC/CPFR Research Ltd

Perdac was a Manchester University Campus Ventures company formed in January 2001, with a mission to present high quality advanced short courses, based upon contributions from University and Industrial Scientists and Engineers who are at the highest levels in their fields. Since 2015 CPFR has taken over running this short course under the Perdac banner with no changes in course aims or presentation team.

### COURSE CONTENT

1. This course meets the needs of industrialists and researchers involved in the atomization of molten metals for powder production.
2. It emphasises Systems Engineering of entire plants; melting to cooling, drying, dewatering, sieving, conveying, feeding etc.
3. The technology of atomizing of metals and other melts must compete against other methods of production. The factors affecting the relative attractiveness of atomization and alternative methods are discussed.
4. The course emphasizes both current practice and key areas of current interest in these fields, including an informative, but critical, overview of the main atomization techniques in current use and the requirements of powders for different applications, including Additive Manufacturing.
5. The principles of atomization and the physical processes involved when atomizing metals are covered with clarity
6. Coverage is provided on modern powder and spray measurement techniques and computer modelling approaches.

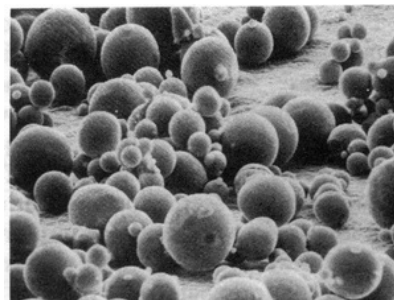
### BACKGROUND OF THE COURSE

1. To satisfy requests from industry the Lecturers developed this course devoted entirely to Atomizing Metals for Powder Production.
2. The course is held annually with updates each year, and has been attended by over 300 specialists from 17 countries and 5 continents.
3. The course provides a cohesive overview suitable for those in both the industrial and research environments. It also acts as a concise up to date introduction to those new to the field.
4. It is believed to be unique in the World in its subject matter and content



*Ultrasonic Atomization of Low Melting Point Alloy and (top left) Gas Atomizer Close Coupled Nozzle*

**A unique course directed to practitioners and researchers on the principles and practice of powder manufacture by atomization of molten metals**



### Application: Atomization for Metal Powders

**PREFERABLY REGISTER ONLINE AT [www.cpfresearch.com/courses/amp-course/](http://www.cpfresearch.com/courses/amp-course/)**

Or please return this slip; or email the information below;

Name/Title:..... Tel No: ..... Fax No:.....

Appointment/Occupation: ..... Email:.....

Address:.....

.....  
Name/Address for Invoice (if different from above)

.....  
Some **discounted fees** are available to bona-fide students, please enquire

**The Course Fee is £990**

***Accommodation: On receipt of your registration we shall invoice you and provide information on recommended hotels, in different price ranges, near the Course Venue.***

***EARLY BIRD DISCOUNTS: £100: REGISTER BEFORE 30th NOVEMBER 2018, OR £60: REGISTER BEFORE 10th JANUARY 2019, MULTIPLE BOOKINGS: £120 DISCOUNT FOR 2nd AND FURTHER PERSONS FROM ONE FIRM***

John Dunkley and Andrew Yule published their book "Atomization of Melts" in 1994 (Oxford University Press). Since that time there have been further developments in the field, and ASL has supplied some 50 plants: this experience adds to the value of the course, beyond the book contents. The book "Industrial Sprays and Atomization" published in 2002 (Springer-Verlag), covers manufacturing techniques, atomizer types, and measurement techniques developed in recent years. Co-author Andrew Yule brings his experience of other fields of application of atomization to bear upon the metal atomizing field to provide useful insights.

***NB: Subject to availability, registrants will be able to purchase copies of the recently reprinted book "Atomization of Melts" during the Course at a discounted price***

#### Contact (General):

By email [courses@perdac.co.uk](mailto:courses@perdac.co.uk)

Prof A J Yule (Course Organiser)

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Websites: [www.cpfresearch.com](http://www.cpfresearch.com)  
[www.atomising.co.uk](http://www.atomising.co.uk)

*Fe Atomization from Rotating 400mm Disk*

#### THE VENUE

All lectures and lunches will be held in the conference hotel in central Manchester. Detailed Joining Instructions will be provided. Manchester Airport has direct services to most European countries and many long haul flights throughout the World. The airport is directly linked by train to central Manchester (15min journey).

*The organisers & lecturers reserve the right to modify details of courses if required. Courses run conditionally on meeting minimum delegate numbers by a deadline date.*

