

**PARTICLE CHARACTERISATION INTEREST GROUP
NEWSLETTER
August 2007**

FORTHCOMING MEETINGS

**The University of Leeds, The Particle Characterisation Interest Group and
PowdermatriX are pleased to announce a co-badged seminar**

**NanoParticle Applications: Industry meets Academia
At Pride Park Stadium,
Derby DE24 8XL
Thursday 22nd November 2007**

There is currently much debate concerning the future of nanotechnology and the potential breakthroughs that might be achieved in a host of industries (medical, environmental, electrical / magnetic to name just a few). Perhaps less widely appreciated is the extent to which many companies already employ nano-materials within their production processes.

The aim of this meeting is to encourage interaction between industrialists who are already involved in the manufacturing, handling, characterisation and control of nano-powders and researchers who have a clear end application in mind but are currently grappling with technical barriers at a laboratory scale.

The morning session will feature short talks from industrialists whilst the afternoon session will deal with university research.

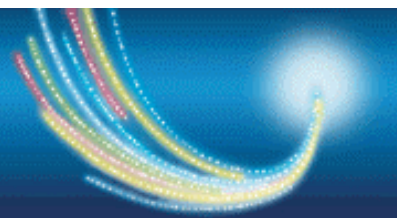
There will be an opportunity for delegates to bring and display posters relating to nanotechnology. These can be of an academic or commercial nature. Coffee breaks and the lunchtime period will offer an opportunity to view posters.

Mindful of the fact the European Framework Programme VII will be almost a year old at the date of this seminar, there will also be a post-it board where delegates can raise awareness of planned nanotechnology project submissions and place related requests for project partners etc. The Faraday Network organisation "PowdermatriX" undertakes to collate all information and provide assistance through sign-posting, partner matching etc. by way of follow-up.

A programme and registration form is included with this newsletter. Additional information can be obtained from the PCIG administrator (see back page for contact details).

PARTICULATE SYSTEMS ANALYSIS 2008

02 - 04th September 2008



This 10th PSA conference, organised by the Particle Characterisation Interest Group of the RSC, follows on from the successful conference and exhibition held in Stratford upon Avon in September 2005. The venue chosen for 2008 is a modern, well-appointed Holiday Inn Hotel (formerly The Moat House Hotel) within walking distance of the centre of the Shakespearean town of Stratford upon Avon.

Call for Papers

Papers are invited in the following thematic areas:



Process Analytical Technology.



Measuring techniques for particulate systems.

- Single particle and bulk powder characterisation
- Particle size, shape, and microstructure evaluation
- Flow Analysis, including non-invasive particle tracking
- Rheological analysis
- Acoustic measurement techniques, including ultrasound
- Electrical charge and cohesiveness evaluation
- Emerging characterisation techniques for nano systems



Particulate systems, products and processes

- Particulate chemistry and product design- Functionalisation across the length scales
- Solids handling and processing
- Multi-phase products and processes
- New theories and methods for nano-systems



Computer modelling of particulate systems and processes

The PSA2008 conference and exhibition will be relevant to a range of scientific, technological and engineering sectors, in particular, the pharmaceutical, nuclear, chemical, biomedical, mineral, food and household product industries.

Plenary Speakers :

- Kevin Powers
- John Dodds
- Richard Buscall
- David Littlejohn
- Kevin Kendall
- Andrei Dukhin
- Stefaan Simons
- Simon Biggs

Up to date conference and exhibition information is available from: Nicki Tonkinson, PCIG :
ron@psa2008.co.uk Tel; (0044) 01283 810091

**Meeting of the Particle Characterisation Interest Group (PCIG)
of the Royal Society of Chemistry held at
LGC (Runcorn) on Wednesday 21 March 2007.**

“Training Meeting on Particle Size Measurement”

This training day, provided by some of the most experienced members of the Particle Sizing community, aimed to offer a comprehensive and practical view of the measurement of particle size distributions.

Introduction to Particle Size Measurement and Characterisation (Dr Nayland Stanley-Wood)
Sub Sampling of Powders (Dr Henk Merkus)
Image Analysis (Mr Keith Brocklehurst)
Problems and application difficulties experienced in laser diffraction measurements (Mr Maurice Wedd)
Sedimentation (Mr Ron Buxton)
Electrozone Sensing Method (Mr Brian Miller)
Sieves. Their use and abuse (Dr Dominic Rhodes)
Understanding Surface Area and Pore Size Measurement (Mr Mike Tucker)
Measurement of Size and Zeta Potential using dynamic light scattering (Mr Mike Kaszuba)

The meeting and equipment exhibition attracted 47 delegates from 30 organisations.

The prize draw winner was Ms Karen Pardoe from British Sugar PLC.

Copies of the full presentations from this meeting are available on CD to those who were unable to attend. These are priced at £25 each and can be obtained from the PCIG administrator (see back page for contact details)

Report on ISO TC24 / SC4 meeting, Beijing. 30th & 31st March 2007
(Dr Nayland Stanley Wood)

The 29th meeting of ISO/TC24/SC4 was held in conjunction with, and at the end of, POWTECH 2007 at the Congress Centre Nuremberg (CCN Middle), Nuremberg Messe, Germany. The UK delegation consisted of Paul Quincey, Alan Rawle, Nayland Stanley-Wood, Richard Tweedie and Maurice Wedd.

The progress made since the last meeting in Beijing has, once again, been considerable as illustrated by the ‘bumper bundle’ of Resolutions passed on the afternoon of the last day; Saturday. Sub Committee 24 [Sizing by methods other than sieving] has shown consistent activity over the past years and has, by the hard work of all participating countries, been able to maintain the strict timetable for the production of standards imposed by the International Standards Organisation, Geneva.

The nomenclature used by ISO to describe the progression of a PWI– *proposed work item* to a FDIS – *final draft standard* has appeared in a previous PCIG newsletter.

The website www.iso.org/iso/en/stdsdevelopment/tc/tclist/TechnicalCommitteeList, when updated, lists all published ISO standards and standards under consideration. The current position of International Standards after the meeting in Nuremberg is: -

WG 1: Representation of analysis data. (convener Michael Stintz)

Representation of results of particle size analysis—

Part 1: Graphical representation [Published ISO 9276-1:1998/Cor: 2004]

Part 2: Calculation of average particle sizes/diameters and moments from particle size distributions [Published BS ISO 9276-2:2001] Now the subject of a 5 yr systematic review with the proposal that an alternative notation to moments be considered in the calculation of average particle size. (see ISO CD 9276-7)

Part 3: Adjustment of an experimental cumulative curve to a reference model [ISO DIS 9276-3]

Part 4: Characterisation of a classification process used for particle size analysis [Published ISO 9276-4:2001] Now the subject of a 5 yr systematic review

Part 5: Methods of calculations relating to particle size analysis using the logarithmic probability distribution [Published as ISO 9276-5:2005]

Part 6: The description and quantitative representation of Particle Shape and Morphology. [ISO FDIS 9276-6]

Part 7: Calculation of moments, mean particle sizes/diameters and standard deviation from particle size distribution (Moment-Ratio [M-R] system)

Discussion on a “Terminology” Standard [ISO CD 9276-7]

WG 2: Sedimentation, classification (convener Dietmar Lerche)

Determination of particle size distribution by gravitational sedimentation methods -

Part 1: General principles and guideline [BS ISO 13317-1:2001] Now the subject of a 5 year revision.

Part 2: Fixed pipette method [BS ISO 13317-2:2001] Subjected to a corrigendum

Part 3: x-ray gravitational technique [BS ISO 13317-3:2001].

Part 4: Balance method. [NWI 13317-4]

Determination of particle size distribution by centrifugal liquid sedimentation methods -

Part 1: General principles and guidelines [BS ISO 13318-1:2001] Now the subject of a 5 year revision.

Part 2 Photocentrifuge method [BS ISO 13318-2:2001].

Part 3 Centrifugal x-ray method [ISO 13318-3].

Part 4: Pipette method [ISO/DIS 13318-4: 2004].

WG 3: Pore size distribution, porosity (convener Matthias Tommes)

Pore size distribution and porosity of materials - Evaluation by mercury porosimetry and gas adsorption-

Part1: Mercury porosimetry [ISO 15901-1 : 2005]

Part 2: Analysis of meso- and macropores by gas adsorption [ISO/FDIS 15901-2]

Part 3: Analysis of micropores by gas adsorption [DIS 15901-3]

Determination of the specific surface area of solids by gas adsorption using the BET method and alternative methods [ISO WD 9277]

WG 5: Electrical sensing methods (convener Billy Goransson)

Determination of particle size distribution –

Electrical sensing zone method [ISO DIS 13319]

WG 6: Laser diffraction methods (convener Ron Iacocca)

Particle size analysis - Laser diffraction methods - General principles [ISO DIS 13320]

WG7: Dynamic light scattering. (convener Robert Finsy)

Particle size analysis- Dynamic light scattering (DLS) [ISO DIS 22412 –2]

WG 8: Image analysis methods (convener Yoshio Otani)

Particle size analysis -

Part 1: Static Image analysis methods [ISO 13322-1:2004].

Part 2: Dynamic Image analysis methods [ISO 13322-2: 2006].

WG 9: Single particle light interaction methods (convener Kazuo Ichijo)

Determination of particle size distribution - Single particle light interaction methods –

Part 1: Light scattering aerosol spectrometer [ISO DIS 21501-1]

Determination of particle size distribution - Single particle light interaction methods

Part 2: Light scattering liquid-borne particle counter [ISO 21501-2]

Part 3: Light extinction liquid-borne particle counter [ISO 21501-3]

Part 4: Light scattering airborne particle counter for clean spaces [ISO/FDIS 21501-4]

WG 10: Small angle x-ray scattering method (convener none)

Particle size analysis –

Small angle X-ray scattering method Published as ISO/TC 13762:2000 and now has a request to be upgraded to an ISO standard. *UK experts are required for this work*

WG 11: Sample preparation. (convener Kari Heiskanen)

Particulate materials –

Sampling and sample splitting for the determination of particulate properties.

[ISO DIS 14488].

Discussion on ‘Reference materials’

Sample preparation -

Particle size analysis - Dispersing agents for powders in liquids.

[ISO14887: 1999].

WG 12: Electrical mobility and analysis methods. (convener Gilbert Sem)

Particle size analysis

Differential electrical mobility analysis for aerosol particles. [ISO DIS 15900]

WG 14: Particle characterisation by acoustic methods. (convener David Scott)

Measurement and characterisation of particles by acoustic methods

Part 1: Ultrasonic attenuation spectroscopy, [ISO 20998-1: 2006]

WG15: Focused scanning beam techniques (convener Gregor Hsaio)

Particle size characterisation by focused beam methods –

Part 1: Back scattering techniques [ISO CD]

Resolutions from the ISO TC24/SC4

Resolution 148.

ISO TC 24/SC4 resolved that ISO DIS 9276-6 ‘Representation of results of particle size analysis – Part 6: Description and quantitative representation of particle shape and morphology’ be forwarded to the Central Secretariat, Geneva for recommendation and circulation as a final draft international standard (FDIS).

Resolution 149.

ISO TC 24/SC4 resolved that a new work item (NWI) be established with the title ISO 13317-4 ‘Determination of particle size distribution by gravitational liquid sedimentation methods – Part 4: Balance method’ in Work Group 2.

Resolution 150.

ISO TC 24/SC4 resolved that ISO WD 9277 ‘Determination of the specific surface area of solids by gas adsorption using the BET method and alternative methods’ be registered with the Central Secretariat, Geneva as a committee draft.

Resolution 151.

ISO TC 24/SC4 resolved that ISO CD 13320 ‘Particle size analysis – Laser diffraction methods’ be forwarded to the Central Secretariat, Geneva for circulation as a draft international standard (DIS).

Resolution 152.

ISO TC 24/SC4 resolved that ISO DIS 22412 ‘Particle size analysis – Dynamic light scattering’ be forwarded to the Central Secretariat, Geneva for recommendation and circulation as a final draft international standard (FDIS)

Resolution 153.

ISO TC 24/SC4 resolved that ISO CD 21501-1 ‘Determination of particle size distribution – Single particle light interaction methods – Part 1: Light scattering aerosol spectrometer’ be forwarded to the Central Secretariat, Geneva for circulation as a draft international standard (DIS)

Resolution 154.

ISO TC 24/SC4 resolved that ISO CD 15900 ‘Determination of particle size distribution – Differential electrical mobility analysis for aerosol particle’ be forwarded to the Central Secretariat, Geneva for circulation as a draft international standard (DIS)

Resolution 155.

ISO TC 24/SC4 resolved that a new work item (NWI) be registered with the title ‘Particle size characterisation by focussed beam methods – Part 1: Back scattering techniques’ and the associated draft registered with the Central Secretariat, Geneva as a committee draft.

Resolution 156.

ISO TC 24/SC4 request that the title of ISO TC 24 ‘Sieves, sieving and sizing methods’ be changed to ‘Particle characterisation including sieving’.

Resolution 157.

ISO TC 24/SC4 request that the title of SC4 ‘Sieving by methods other than sieving’ be changed to ‘Particle characterisation’.

The Brian Scarlett Scholarship Fund

For over 40 years Professor Brian Scarlett made a major contribution to the Particulate Sciences. During this period many hundreds of students of many nationalities have gained from Brian’s tutoring and lively stimulation of debate. Over the years, Brian made a habit of taking with him on conference and overseas visits, as many of his students as the budget would permit and sometimes more. He reasoned that exposure to new people with other stimulating ideas would build the students character, broaden their understanding and improve their confidence. When one looks at the positions former students of Brian now command one can see that this philosophy was well founded.

We are therefore seeking to mark Brian’s contribution to society and to the discipline of particle science and engineering, by setting up a ring-fenced fund that will be devoted to supporting student travel in this specific area. The fund will be administered by the Particle Characterisation Interest Group, under the umbrella of the Royal Society of Chemistry, who are experienced in this field and registered as a charity.

Initial Sponsors:

Prof Rose Amal (University of New South Wales)	Prof George Klinzing (University of Pittsburgh/AIChE)
Dr Judith Bonsall (Unilever)	Dr Hank Merkus (Delft TU)
Prof Reg Davies (Du Pont Fellow)	Prof Brij Moudgil (University of Florida)
Prof John Dodds (Ecole de Mines)	Prof R Pfeffer (NIJT)
Professor Leslie Ford	Prof Wolfgang Peukert (University of Erlangen)
Prof Kari Heiskanen (University of Helsinki)	Prof Dr Sotiris Pratsinis (ETH)
Prof Ko Higashitani (University of Kyoto)	Mr Maurice Wedd (Malvern Instruments)
Dr Sue Ion (BNFL)	Prof. Richard Williams (University of Leeds)
Dr Nikolaas de Jaeger (President, International Fine Particle Research Institute)	

Further Information can be obtained from:

The Administrator of The Brian Scarlett Scholarship Fund, c/o PCIG, Station Yard Industrial Estate, Hatton, Derbyshire, DE65 5DU UK, Tel: +44 (0) 1283 810091 Fax: +44 (0) 1283 520412.
Email particles@btconnect.com

Bursaries

PCIG AWARDS in the form of bursaries, which may be up to £250.00 each, are available to student members of the Particle Characterisation Interest Group of the RSC in order to attend Conferences.

GENERAL BURSARY AWARDS: Consideration will be given on a case by case basis to full Particle Characterisation Interest Group members who by the receipt of such a bursary may make a contribution for the benefit of the particle characterisation community that would otherwise not be possible. These may be for travel expenses etc for attending conferences or standards meetings. The applicant must have been a full member of the PCIG for at least 1 year. Further information on either of these awards can be obtained from the Secretary (see back page for contact details).

Useful Web Links

Royal Society of Chemistry

<http://www.rsc.org/>

Particle Characterisation Interest Group

<http://www.rsc-particles.org>

and

<http://www.rsc.org/Membership/Networking/InterestGroups/ParticleCharacterisation/index.asp>

PCIG International Conference, PSA 2008,

The Holiday Inn, Stratford upon Avon, 2 – 4 September 2008

<http://www.psa2008.co.uk/>

CHEMSOC, the Royal Society of Chemistry's Chemical Science Network

<http://www.chemsoc.org/events/conhome.htm>

ISO, International Organisation for Standardisation

<http://www.iso.ch/iso/en/aboutiso/introduction/index.html>

Institute of Particle Science & Engineering, University of Leeds

<http://www.leeds.ac.uk/speme/ipse/events-frame.html>

EventsWeb

<http://www.particlescic.com/eventsweb.php>

Laser Diffraction Proficiency Testing Scheme (LDPTS)

The primary aim of the scheme is to monitor and improve measurements made using laser diffraction particle size analysers. The scheme provides laboratories with a means of independently assessing their performance using a variety of samples and enables them to demonstrate to customers and regulatory bodies, on an international basis, the validity of their results. The scheme also enables laboratories and regulatory bodies concerned with the measurement of materials for particle size to gain information on the efficacy of methods and assist in the understanding and the promotion of laser diffraction analysers for this type of analysis. LGC operates the scheme on behalf of, and under the guidance of, an independently appointed Steering Committee. For further information please contact Keith Brocklehurst at LGC (see below for contact details).

PCIG COMMITTEE 2007/2008

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DR DOMINIC RHODES

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Fax: 019467 79007
Pager 01426 408279
Email: dr33@nexasolutions.com

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Further Information

For further information on meetings or the group, please contact:
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c/o Particle Technology Ltd, Units 1 & 2, Station Yard Industrial Estate, Hatton,
Derbyshire DE65 5DU
Tel 01283 810091, Fax 01283 520412

This newsletter is published by the Particle Characterisation Interest Group of the Analytical Division of the Royal Society of Chemistry and edited by

Mr Keith G Brocklehurst
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Comments on the newsletter or items for inclusion in the next edition should be sent to the editor.

PowdermatriX

Particle Characterisation Interest Group, The University of Leeds and
PowdermatriX

Thursday 22nd November 2007

“Nanoparticle Applications: Industry meets Academia”

at

Pride Park Stadium, Pride Park, Derby DE24 8XL

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Programme

9.00 –10.00a.m	Registration
10.00 a.m.	Welcome
10.10a.m.	Title to be confirmed Dr. Michael Rees, NanoForce
10.35 a.m.	Title to be confirmed Dr Martin Gardener , Oxonica
11.00 a.m.	Formulated Nanoparticle Dispersions at Industrial Scale Dr. Ed Lester, University of Nottingham
11.25 a.m.	Coffee
11.55 a.m.	Nanoparticles in printed Electronics Derek Graham, ICI
12.20 p.m.	Nanotechnology in the USA with Specific Reference to Cancer Therapy Dr Alan Rawle, Malvern Instruments Inc.
12.45 p.m.	LUNCH
13.45 p.m.	Processing of Nanostructured Ceramics Professor Jon Binner, Loughborough University
14.30 p.m.	Nanoparticle Coating and Characterisation Dr. Ping Xiao, University of Manchester
15.15 p.m.	Enhanced Transport Properties and Behaviour of Nanofluids Professor Yulong Ding, University of Leeds
16.00 p.m.	Discussion and Conference Close

Registration Form

Cost of attendance (to include lunch) will be:

Members of PowderMatrix /PCIG / RSC = £ 90. Non-members = £ 110. £20 to display a poster

Students = £ 55(incl poster)

Meeting to be held Thursday 22nd November 2007

NanoParticle Applications; Industry meets Academia

Delegate (please complete one form per delegate)

Name	
Company	
Address	
Telephone	
Fax	
E mail	
Method of Payment	
Payment Amount	
Dietary Requirements	
Please indicate where you heard about the conference	

Registration Fees: Please Indicate*

£110.00 Non Members, £90.00 PCIG/RSC/ PowderMatrix Member, + £20 Poster ,
£55.00 Student Rate, incl poster

I enclose a **cheque** for £_____ payable to **Particle Characterisation Group** (overseas cheques should be made in £ Sterling by a cheque drawn on a London Bank or otherwise free of all bank charges and commission). For **BACS payments Account Name Lloyds Bank, Burton upon Trent, Staffordshire Sort Code 30-91-47, Account Number 03472159.**

Registration fees must be paid prior to the official start of the event. Registration can only be confirmed on receipt of payment. Receipts will be sent on request with a confirmation of registration.

We accept payment by **Delta, Visa, MasterCard and Maestro. Regrettably AMEX is not accepted.**

If paying by credit card please include details:

Name of Cardholder	
Credit Card Number	
Expiry Date	
Security Code (last 3 digits on reverse of card)	

Please send this form with your payment to:

Mrs Nicki Tonkinson

C/o Particle Technology Ltd

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Station Yard Industrial Estate

Hatton

Derbyshire

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UK

Tel +44 (0) 1283 810091 Fax +44 (0) 1283 520412 Email particles@btconnect.com

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Particle Characterisation Interest Group of RSC

Analytical Division
The Royal Society of Chemistry

Focussed Intermediate Training Meeting on Particle Size
Measurement
(Certificate of Training for Professional Development Provided)

**At Pride Park Stadium,
Pride Park, Derby
DE24 8XL
Thursday 17th April 2008**

Particle Sizing is but one task undertaken within modern analysis laboratories. Such laboratories also experience quite a high turnover of people in order to further the career paths of the staff, and it is not always possible for the outgoing staff to pass on their experience and knowledge to the newcomers. This more advanced training day, provided by some of the most experienced members of the Particle Sizing community, aims to offer a comprehensive and practical view of the measurement of particle size distributions.

It will concentrate on the four principal techniques of laser diffraction (both dry and wet measurements), electrozone sensing, microscopy and sedimentation. The techniques of sampling, dispersion, presentation of results and current standards and certified reference materials, will be tailored and addressed relevant to each technique. Particular attention will be paid to the pitfalls that may be encountered.

Comprehensive notes will be provided together with a certificate of training.
Interaction with the audience during each talk is to be encouraged.

PROGRAMME

9.00-09.45 Registration and Coffee

09.45 Introduction

Richard Holdich

10.10 Method Development

Andrew Mark

10.30 Sedimentation :

Gravity Simon Hall , Ceram

Centrifugal Hiran Vegad , Analytik

11.30 Laser Diffraction both of dry and dispersed materials

Maurice Wedd

12,30 - 14.00 Buffet Lunch / Demonstrations

14.00 Image Analysis

Visual Keith Brocklehurst , LGC

SEM Duncan Leetch , Castrol

15.15 Electrozone Sensing Method

Brian Miller

16.15 The speakers together with others will conduct an exchange forum to resolve individual questions either in public so that all may learn or in one to one discussions.

**Training Meeting on Particle Size Measurement
At Pride Park Stadium, Derby
Thursday 17th April 2008**

Particle Characterisation Interest Group Analytical Group of RSC

Registration Form

To register please complete this page and return with payment by the 10th April 2008 to:

Mrs Nicki Tonkinson C/O Particle Technology Ltd

Units 1&2, Station Yard Industrial Estate

Hatton, South Derbyshire

DE65 5DU.

Tel: 01283 810091/520365

Fax: 01283 520412

Email: particles@btconnect.com

Delegate (please complete one form per delegate)

Name	
Company	
Address	
Telephone	
Fax	
E mail	
Indicate Payment Method & Amount	
Dietary Requirements	
Please indicate where you heard of this meeting	
Topics of Interest	

Registration Fees: Please indicate*

Costs include tea/coffee and lunch:

£110.00 Non Members, £90.00 RSC/PCIG Member, £55.00 Student Rate

I enclose a cheque for £_____ payable to Particle Characterisation Interest Group

(overseas cheques should be made in £ Sterling by a cheque drawn on a London Bank or otherwise free of all bank charges and commission).

Registration fees must be paid prior to the official start of the event. Registration can only be confirmed on receipt of payment. Receipts will be sent on request with a map and confirmation of Booking.

If paying by credit card please include details: **Unfortunately, we are unable to accept American Express**

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Credit Card Number	
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