

Sunday, 9th July 2017

12:30 Registration opens, Imperial College London [Foyer, Sherfield Building]

13:00-17:00

Workshop specialist sessions [Sherfield Building]
Room: Reed

Workshop 1: THP design and operational experience
Dr Bill Barber, Cambi as Chair
Room: SALC 5

Workshop 2: Developments in Dewatering
Prof Matt Higgins, Bucknell University as Chair
Room: SALC 6

Workshop 3: Enhanced Control & automation for process optimisation of sludge processes
Dr Stephen Palmer, MWH as Chair
Room: SALC 7

Workshop 4: Developments in Drying and Advanced Thermal Conversion
Lynne Bouchy, Suez as Chair
Discussion topics

- WAS(SAS) only THP vs full THP
- Optimum AD conditions for THP
- Colour and refractory COD creation in THP
- Sludge rheology considerations

- Advances in polymer design and application
- The impact of sludge chemistry and EPS
- A bio-floc model that fits reality
- Optimum configurations & technology

- Generating the most sludge for processing
- Best practice for digester operation - optimising performance
- Best practice for sludge thickening & dewatering control
- Why is an holistic approach important?

- Principles of drying and typical applications
- Drivers for drying installations globally
- Principles of thermal conversion
- Global applications of Thermal Conversion

Presentations
Commissioning a THP and Anammox: "The things you never hear at a conference"
 Jan-Evert van Veldhoven, Waterboard de Dommel

The impact of MID ratio on dewatering of THP digested sludge
 Ester Rus and Obinna Molokwu - Thames Water

Practical sludge stream, optimisations
 Marc Kuliszer, Hach

Drivers for Advanced Thermal Conversion - the utilities perspective
 Aurelien Perrault, Thames Water

Advanced Digestion Of Sludge Enhances Shift Of Biosolids Management Strategy In Beijing--Cambi Experience
 Zuliang Liao, Cambi China

The role of EPS on dewatering performance
 Mahmudul Hasan, The George Washington University

Advances in the control of Sludge Thickening
 James Davies, Hach & Anne-laure Masse, Thames Water

Thermal Conversion of sewage sludge in Japan - best practice
 Masaki Takaoka, Kyoto University

An overview of THP operation in the UK - key considerations for design and optimum AD conditions
 Paul Fountain, Thames Water & Joe Merry, MWH

Understanding the limits of Mechanical Dewatering
 Julia Kopp, Kopp

Is sludge age a Critical Factor in Control?
 Stephen Palmer, MWH

Gasification Versus Incineration of Sewage Sludge -- Technical, Economic And Sanitary Aspects
 Albert Heindl, Huber

Thermal Hydrolysis of other materials and feedstocks
 Henrik Kruchen, Haarslev

Developments in Polymer design & application
 Kerstin Hick, SNF

Using Sludge Age as an operational parameter - case study
 Martin Butterfield, Hach

An example of a pyrolysis solution for waste, adaptable to sludge?
 Olivier Lepez, ETIA

Challenges in operation of THP pre-dewatering
 Joost Vliegen, GEA

Highly Efficient Bucher HPS 12007 Dewatering Technology Prior to Incineration To Achieve A Positive Energy Balance
 Jean Francois Mischler, Bucher

Example of a pyrolysis solution suited for sludge application
 Chris Lee, EPI

Colour and refractory COD creation in THP
 Damien Batstone, Advanced Water Management Centre, Australia

Comparison of sludge-dewatering technologies on hydrolysed digested sludge
 Pat Condon, GEA

Principles of drying, applications and drivers
 Ivan Arauzo, Suez

Versatile applications of sludge gasification technology
 Eoin Butler, Kopf-Syngas

Tea & Coffee provided [Sherfield Building]

Monday, 10th July 2017

 8:30 **Coffee & Registration, Imperial College London [Foyer, Queen's Tower Rooms]**

 9:00 **Opening and Keynote Addresses [Great Hall]**
Dr Nick Mills, Thames Water – UK
Opening Address
Prof Damien Batstone, Advanced Management Centre – Australia
Using modelling to improve the selection and operation of sludge treatment options
Dr Sudhir Murthy, DC Water – USA
Energy Efficient Intesification
Dr F. Dilek Sanin, Middle East Technical University – Turkey
Emerging Contaminants

 10:30 **Break & Exhibition, Imperial College London [Queen's Tower Rooms]**

 11:00 **Specialist Sessions (30 min presentations), Imperial College London [Sherfield Building]**
Room: Great Hall
Theme 1: Anaerobic digestion & sludge pretreatment
Chairs: Prof. Stephen Smith & Winson Lay
Methane Production From The Cambi SolidStream Centrate In An Upflow Anaerobic Sludge Blanket Reactor
 Oda Kjorlaug, Cambi

Membrane Digester As Key Unit Of Sludge Treatment At Changing Frame Conditions
 Robert Lutze, TU Darmstadt, Institute IWAR

Optimising Anaerobic Digestion Performance Through Improved Understanding Of Fundamental Operational Parameters
 Stefano Giacalone, Thames Water & Imperial College London

Room: Reed
Theme 2: Material & nutrient recovery
Chairs: Jan-Evert van Veldhoven & Dr Sudhir Murthy
Combining Phosphorus Recovery And Ammonia Removal In The Omzet Amersfoort Project
 Derek Lycke, Ostara Nutrient Recovery Solutions

Life Cycle Assessment Of Resource Recovery From Primary And Waste Activated Sludge
 Arjen van Nieuwenhuijzen, Witteveen+Bos Consulting Engineers

Organic Recovery From Different Sewage Sludge Via Acidogenic Fermentation To Provide Carbon Source For Denitrification
 Lin Lin, The University of Hong Kong

Room: Pipard
Theme 3: Dewatering, recycling, policy & contaminants
Chairs: Dr Matt Higgins and Steve Bungay
Biosolids As Marsh Creation Amendment
 Madeline Foster-Martinez, University of California, Berkeley

Evaluation Of Dewatering Characteristics Of Wastewater Sludge From Different Treatment Processes
 Mahmudul Hasan, The George Washington University

Full Scale Optimisation Of Sludge Dewatering And Phosphate Recovery At Harnaspolder Wwtp (The Hague, NL)
 Mirabella Mulder, MMWWM

Room: SALC 5
Theme 4: Thermal conversion & biochar/ash
Chairs: Dr Masaki Takaoka & Dr Rex Thorpe
Sewage Sludge Incinerator Composed Of Pressurized Fluidized Bed Incinerator And Turbocharger
 Yuki Asaoka, Tsukishimakikai Co.,Ltd.

Investigating The Effect Of An Alternative Feedstock On The Performance Of Sludge Powered Generators
 Rex Thorpe, University of Surrey

Innovative Sewage Sludge Incineration System
 Kenichi Sonoda, METAWATER Co., Ltd.

 12:30 **Lunch and Exhibition, Imperial College London [Queen's Tower Rooms]**

Monday, 10th July 2017

13:30

Specialist sessions (speed sessions, 15 min presentations), Imperial College London
Room: Great Hall
Theme 1: Anaerobic digestion & sludge pretreatment
Chairs: Prof. Stephen Smith & Winson Lay
Impact Of Microwave Pretreatment On Anaerobic Digestion Of Wastewater Sludge And Biosolids Quality For Land Application

Gokce Kor Bicakci, Istanbul Technical University

The Application Of WAS-Only Thermal Hydrolysis At Psyttalia WWTP

Dimitris Zikakis, Aktor S.A.

Digesting Sludge From A/B Process: Comparison To Conventional Primary And Mixed Sludge

Marlene Choo-Kun, Suez Treatment Infrastructure

Microaerobic Digestion As A Tool For Improvement Of Digestate Quality

Pavel Jenicek, UCT Prague

Intensification Of Anaerobic Digestion Efficiency With The Use Of Mechanical Waste Activated Sludge Disintegration

Monika Zubrowska-Sudol, Warsaw University Of Technology

Enzymes Use And Selection For Anaerobic Digestion Improvement

Jana Jantova-Patel, Cranfield University

Room: Reed
Theme 2: Material & nutrient recovery
Chairs: Jan-Evert van Veldhoven & Dr Sudhir Murthy
Sieving Wastewater For Energy Efficient And Resource Saving Wastewater Treatment

Martin Kaless, RWTH Aachen University

Assessment Of 70°C Pre-Treatment For Enhancing Secondary Sludge Anaerobic Digestion: Impact Of Monovalent Cations Addition

Adrian Gonzalez, Delft University of Technology

Phosphorus Recovery From Wastewater: SUEZ's Phosphogreen Technology Successfully Running In Denmark

Mathieu Delahaye, Suez International

Modelling The Energy And Nutrient Potential Of Wastewater Treatment Plants

Kerstin Schopf, University of Leoben

Room: Pipard
Theme 3: Dewatering, recycling, policy & contaminants
Chairs: Dr Matt Higgins and Steve Bungay
Influence Of Sludge Characteristics On Pressure-Driven Electro-Dewatering Of Stabilized Sewage Sludge

Simone Visigalli, Politecnico di Milano

Electrodewatering Of Sewage Sludge Using A Plate And Frame Filter Press

Gordon Yang, National Sun Yat-Sen University

Improving Dewaterability Of Anaerobically Digested Sludge By Combination Of Persulfate And Zero Valent Iron

Song Kang, Tokyo University of Agriculture and Technology

A New Spectrophotometry Based Method To Monitor And Optimize The Maturation And Activation Of Polymers

Narek Martirosyan, Carleton University

Room: SALC 5
Theme 4: Thermal conversion & biochar/ash
Chairs: Dr Masaki Takaoka & Dr Rex Thorpe
Biochar From Sewage Sludge: Production, Characterisation And Use For EDCs Removal From Treated Municipal Wastewater

Evan Diamadopoulos, Technical University of Crete

Evaluation Of The Possibility Of Using Sewage Sludge Ash In The Cement Industry: Case Study In Croatia

Drazen Vouk, University of Zagreb

From Pilot To Full-Scale - The Challenge Of Adopting Innovative Technology From A Utility's Perspective

Tsang Kwok-Wai, CDMSmith

Systematic Addition Of Sewage Sludge Ash (SSA) As Cement Substitute To Improve Mechanical Properties Of Concrete

Selim Sanin, Hacettepe University

15:00

Break and Exhibition, Imperial College London [Queen's Tower Rooms]

Monday, 10th July 2017

15:30 **Specialist sessions (30 min presentations), Imperial College London**

Room: Great Hall

Theme 1: Anaerobic digestion & sludge pretreatment

Chairs: Prof. Stephen Smith & Winson Lay

Long-term Effect Of Temperature From 55°C To 70°C On Methane Production Within A Single-stage Sludge Anaerobic Digester
Yan Zhou, NEWRI-AEBC

The Role Of Viscosity In Mesophilic Anaerobic Digestion
Elizabeth Manning, The George Washington University

Optimizing THP -- The Intermediate Thermal Hydrolysis Process
Ester Rus, Thames Water

Room: Pipard

Theme 3: Dewatering, recycling, policy & contaminants

Chairs: Dr Matt Higgins and Steve Bungay

The Potential Risk To The Food Chain From Organic Contaminants Present In Biosolids Used In Agriculture
Hannah Rigby, Imperial College London

Nonylphenol Degradation During Digestion: Case Of Aerobic And Anaerobic Digesters
Dilek Sanin, Middle East Technical University

Pilot-Scale Evaluation Of AirPrex™ For Digestate Treatment
Liam Cavanaugh, Metro Wastewater Reclamation District

Room: SALC 5

Theme 4: Thermal conversion & biochar/ash

Chairs: Dr Masaki Takaoka & Dr Rex Thorpe

The Potential Of Raw Sewage Sludge As A Sustainable Bio-filler For Natural Rubber
Yiran Fan, Imperial College London

Mercury Behaviour In Flue Gas From A Sewage Sludge Incinerator And Melting Furnace
Masaki Takaoka, Kyoto University

Conversion Technology From Sewage Sludge Into Bio Fuel.
Yoshiyuki Hachiya, Tsukishima Kikai Co., Ltd.

17:00 **IWA Sludge Management Specialist Group Open Meeting [SALC 5]**

19:00 - 23:00 **Science Museum Gala Dinner- South Kensington**

Tuesday, 11th July 2017

 8:30 **Coffee & Registration, Imperial College London [Queen's Tower Rooms]**

 9:00 **Specialist sessions (speed sessions, 15 min presentations), Imperial College London**
Room: Great Hall
Theme 5: Optimisation of existing assets
Chairs: Dr Bill Barber and Dr Nick Mills
Re-thinking Sludge Optimisation From End To End
 Garry Strange, Thames Water

Sludge Pumping With Centrifugal Pumps
 Zbigniew Czarnota, Xylem Water Solutions

Torque Rheology And UV-vis Spectrophotometry For Monitoring Sludge Characteristics And Optimization Of Treatment Process
 Jordan Smyth, Carleton University

Identification Of The Rheological Properties Of Mechanically Dewatered Sewage Sludge From Uniaxial Compression Tests
 Martial Sauceau, Mines Albi

Experimental Rheological Procedure Adapted To Dewatered Sludge From 20 To 45% Dry Matter
 Mohamed Mouzaoui, Mines Albi

Room: Reed
Theme 2 (cont): Material & Nutrient Recovery
Chairs: Jan-Evert van Veldhoven & Dr Sudhir Murthy
Direct Dewatering After Continuous THP Creates New Opportunities
 Luchien Luning, Sustec BV

Simultaneous Production Of Lipid And EPS And Techno-economic Analysis.
 Rajeshwar Tyagi, University of Quebec

Carbon Source Recovery From Excess Sludge By Mechanical Disintegration For Biological Denitrification
 Monika Zubrowska-Sudol, Warsaw University of Technology

From Sewage Sludge To VFA: Scaling-up The Process And Comparison With Other Organic Waste Streams
 Jon Garcia-Aguirre, Ceit-IK4

Room: Pipard
Theme 3 (cont): Dewatering, recycling, policy & contaminants
Chairs: Dr Matt Higgins and Steve Bungay
Sludge Management in Malaysia – Now and Future
 Marina Bee Hui Soh - Indah Water Konsortium

Sustainable Sludge Regulation: The Starting Point, Not The End Point
 Pascal Ginisty, IFTS

Fate Of Trace Organic Contaminants In Oxic-Settling-Anoxic Process For Biosolids Reduction During Wastewater Treatment
 Will Price, University of Wollongong

Fate Of Silver Nanoparticles During Sludge Conditioning And After Land Application
 Banu Ormeci, Carleton University

Fate Of Antibiotics During Sludge Pretreatment And Anaerobic Digestion Processes
 Yingxin Zhao, Tianjin University

Room: SALC 5
Theme 6: Anaerobic digestion of other wastes
Chairs: Giuseppe Mininni, Winson Lay
Study On The Methane Production And Microbes Of Anaerobic Co-digestion Of Cow Manure, Corn Straw And Vegetable Residues
 Xuemei Wang, University of Science and Technology Beijing

Aecomix™ DGF For Efficient Energy Recovery From Wastewater And Waste Streams.
 Eddie Broeders, Nijhuis Industries

Expanding Biogas Potential Within The Pulp And Paper Industry
 Francesco Ometto, Scandinavian Biogas Fuels AB

Anaerobic Codigestion Of Sludge And Municipal Organic Waste Improves The Energy Balance Of Rovereto WWTP
 David Bolzonella, University of Verona

Anaerobic Biodegradation Of Pretreated Municipal Solid Waste In Laboratory Scale Bioreactor Landfill
 Asif Siddiqui, Aligarh Muslim University, India

 10:30 **Break and Exhibition, Imperial College London [Queen's Tower Rooms]**

Tuesday, 11th July 2017

11:00

Specialist sessions (30 min presentations), Imperial College London
Room: Great Hall

Theme 5: Optimisation of existing assets
Chairs: Dr Bill Barber and Dr Nick Mills
Room: Reed

Theme 2 (cont): Material & Nutrient Recovery
Chairs: Jan-Evert van Veldhoven & Dr Sudhir Murthy
Room: Pipard

Theme 7: Developing countries & small scale
Chairs: Dr Dilek Sanin and Prof. Elise Cartmell
Room: SALC 5

Theme 6: Anaerobic digestion of other wastes
Chairs: Giuseppe Mininni, Winson Lay

Applying Strategic Planning Principles To Define A "Future-proofed" Biosolids Management Roadmap
 Julian Sandino, CH2M

Investigation Of Precious Metals In Thermal Treatment Residues Of Sewage Sludge
 Kazuyuki Oshita, Kyoto University

An Analysis Of The Ash Fraction In Fecal Sludge And Implications For Performance And Co-Combustion
 BJ Ward, University of Colorado

Optimization Of Methane Production Based On Mixture Content Of Sewage Sludge, Food Waste, And Glycerol
 Isaac Volschan, Federal University of Rio de Janeiro

Controlled Sludge Stream At Swindon STW: Initial Results

Anne-Laure Masse, Thames Water

Recovery Of Ammonium From Digestate As Fertilizer

Eddie Broeders, Nijhuis Industries

Bio-Methane From Sludge Digestion As Vehicle Fuel In Franca - Brazil

Barbara Waelkens, Fraunhofer IGB

FOG Waste Receiving And Processing Facility Design Considerations And Operating Performance

Todd Williams, CH2M

Enhanced Filtration With Rotating Belt Fine Mesh Sieves For Higher Methane Potential From Primary Wastewater Sludge

Ashish Sahu, Salsnes Filter

Microbial Fuel Cells: Sludge Stabilization And Energy Recovery

Secil Omeroglu, Middle East Technical University

Sewage Sludge Disposal Routes: Case Study - North Adriatic Region In Croatia

Drazen Vouk, University of Zagreb

Using A Chemically Hydrolyzed Biosolids For Co-digestion

Robert Sharp, Manhattan College

12:30

Lunch and Exhibition, Imperial College London [Queen's Tower Rooms]

13:30

Specialist sessions (30 min presentations), Imperial College London
Room: Great Hall

Theme 5: Optimisation of existing assets
Chairs: Dr Bill Barber and Dr Nick Mills

Augmenting Digestion Performance With Recuperative Thickening At Al Warsan STP In Dubai, UAE

Ersin Kasirga, Parsons

Impact Of Sludge Liquors On The Hydraulic, Nutrient And Solids Load Of Wastewater Treatment

Peter Winter, Thames Water

Impact Of Recuperative Thickening On Anaerobic Digestion Of Thermally Hydrolyzed Sludge

Adrian Romero-Flores, George Washington University

Room: Reed

Theme 2 (cont): Material & Nutrient Recovery
Chairs: Jan-Evert van Veldhoven & Dr Sudhir Murthy

Consistent Production Of Quality PHA With Activated Sludge From Full Scale Municipal Wastewater Treatment - PHARIO

Leon Korving, Waterschap Brabantse Delta

Removal Of Inorganics From Sludge And Digestate: The BiAR Process

Gian Claudio Faussone, Inser Energia

Feasibility Of Biopolymer Production In Wastewater Treatment Compared To Energy Recovery From Sludge Anaerobic Digestion

Lorenzo Menin, Imperial College London

Room: Pipard

Theme 7: Developing countries & small scale
Chairs: Dr Dilek Sanin and Prof. Elise Cartmell

Reuse Analysis Of Recovered Chemical Sludge From Acid Mine Drainage Treatment For Water Purification

Manoj Tiwari, Indian Institute of Technology Kharagpur

Capturing Sanitation Service Chain Through Co-composting Of Faecal Sludge And Solid Waste

Abdullah Al-Muyeed, WaterAid

Control Of Indicator Bacteria In Sewage Sludge After Conventional & Advanced Biological Treatments In Pilot-scale Plants

Andrea Lopez, University of Zaragoza

Room: SALC 5

Theme 6: Anaerobic digestion of other wastes
Chairs: Giuseppe Mininni, Winson Lay

Anaerobic Digestion As Pre Treatment For The Treatment Of AOX Containing High Strength Pulp And Paper Mill Wastewater

Izharul Farooqi, Aligarh Muslim University

Overview Of Sludge Management Practises In The Pulp And Paper Industry

Torsten Meyer, University of Toronto

Anaerobic Co-digestion Of Sewage Sludge And Pig Slurry Coupled With Ozonation And Hydrodynamic Cavitation

Elena Zuriaga-Agustí, FACSA, Sociedad Fomento Agrícola Castellonense

15:00

Break and Exhibition, Imperial College London [Queen's Tower Rooms]

Tuesday, 11th July 2017
15:15 Closing Panel Session [Great Hall]

Featuring Mark Stevenson, Banu Omerci, Jan-Evert van Veldhoven, Bill Barber, and Winson Lay.

Exploring the top 3 challenges and opportunities surrounding sewage sludge, what we need to differently to be economic and environmentally sustainable, and the next big technology changes we will face in the near future.

16:20- 17:00 Closing Ceremony [Great Hall]

Mark Stevenson: author and Founder of "We Do Things Differently", Mark is an entrepreneur, author, broadcaster and expert on global trends and innovation.

Monday and Tuesday

09:00 – 17:00

Poster Presentations

Thermal Hydrolysis Full Scale System Performance	Todd Williams
High Load Anaerobic Digestion On A WWTP With Seasonal Variation: First Year Of Successful Operation	Werner Sternad
Two-phase Anaerobic Digestion Of Pre-treated Sludge: Modelling Acetate Accumulation And Hydrogen Partial Pressure	Daniele Montecchio
Application Of Statistical Analysis Methods For The Interpretation Of Sludge Treatment Data	Jin Liu
GEA Varipond® Automatic Pond Depth Adjustment For Centrifuges	Joost Vliegen
Enhanced Biochemical Methane Potential Of High-solids Sewage Sludge By Low Power Ultrasonic And Ca(OH) ₂ Pretreatment	Min Ji
Advanced Digestion Processes Turning Sludge Or Bio-waste Into Energy: The Impact Of The Organic Load	Andrea Gianico
Enhancing The Biogas Production Of Sludge Anaerobic Digestion By Combination Of Zero-valent Iron And Persulfate	Fei WANG
Struvite Precipitation In Pilot Scale -- Effects Of PH, Magnesium Source And Mg:P:N Ratio On Phosphorus Recovery	ISAAC VOLSCHAN
Effects Of Different Two-stage Processes On Anaerobic Digestion Of Food Wastes	Benyi Xiao
Technical And Economic Assessment Of Solutions To Improve The Sludge Management In The Largest Italian WWTP	Barbara Ruffino
Asset Reliability & Performance And Its Impact On Sludge Treatment Economics In Sewage Treatment Works	Flavia Macedo
New Technology For Optimized Sludge Digestion	Dennis Heijkoop
Use Of Excess Sludge As A Flocculent To Increase The Efficiency Of PST In Activated Sludge Process	Dharmraj Jangid
Application Of Aerobic Digested Sewage Sludge On Agricultural Soils: Monitoring Of Microbial Indicators And Pathogens	Natividad Miguel
Dewaterability Of Thermophilic Digested Municipal Sewage Sludge	Leon Korving
Hygienization Of Sewage Sludge For Agricultural Use After Conventional And Advanced Treatments In Pilot-scale Plants	Andrea Lopez
Mobile Sludge Thickening: Results From Anglian Water's Shop Window	David Inman
Co-treatment Of Septic Tank Residue In Domestic Sewage Treatment Plant	Josiane Pistorello
Iran Municipal Wastewater & Sludge Situation	Zohreh Ekhtiarzadeh
Heating Value Analysis Of Sewage Sludge Of Japan	Yahya Mahzoun
Application Of SWOT As A Tool To Assess Different Sludge Combustion Methods	Derya Dursun

Wednesday, 12th July 2017

8:00	Registration for Site Visit <i>Meet at Ethos Sports Center on the North side of Prince's Gardens, Imperial College</i>	
8:30	Coach departs	
10:00	Arrival at Crossness WWTW	
10:30	Group A Site tour of THP plant and pyrolysis construction	Group B Presentation on the history of Crossness, current operation and plans for THP & AER Prince Consort Engine in Steam
12:30	Lunch in the Engines Trust	
13:30	Group A Presentation on the history of Crossness, current operation and plans for THP & AER Prince Consort Engine in Steam	Group B Site tour of THP plant and pyrolysis construction
15:30	Coach departs	
17:00	Arrival at Imperial College London	

Thursday, 13th July 2017

8:00	Registration for Site Visit [Exhibition Road, Imperial College] <i>Meet at Ethos Sports Center on the North side of Prince's Gardens, Imperial College</i>	
8:30	Coach departs	
10:00	Arrival at Reading WWTW	
10:30	Site presentation & tour. Features a visit to a modern WWTW and a presentation & tour of the Thames Water Innovation lab and pilot facilities.	
12:30	Lunch	
13:30	Travel to Basingstoke WWTW	
14:00	Site presentation & tour Features the Sludge & Energy Innovation THP pilot facility, and tour of the new full scale Cambi B6 THP plant.	
16:00	Coach departs, returning via Heathrow Airport	
17:45	Arrival at Imperial College London	