



# NMR – Nordic Aerosol Project 2004-2006

Kick-off Meeting 29 April 2004

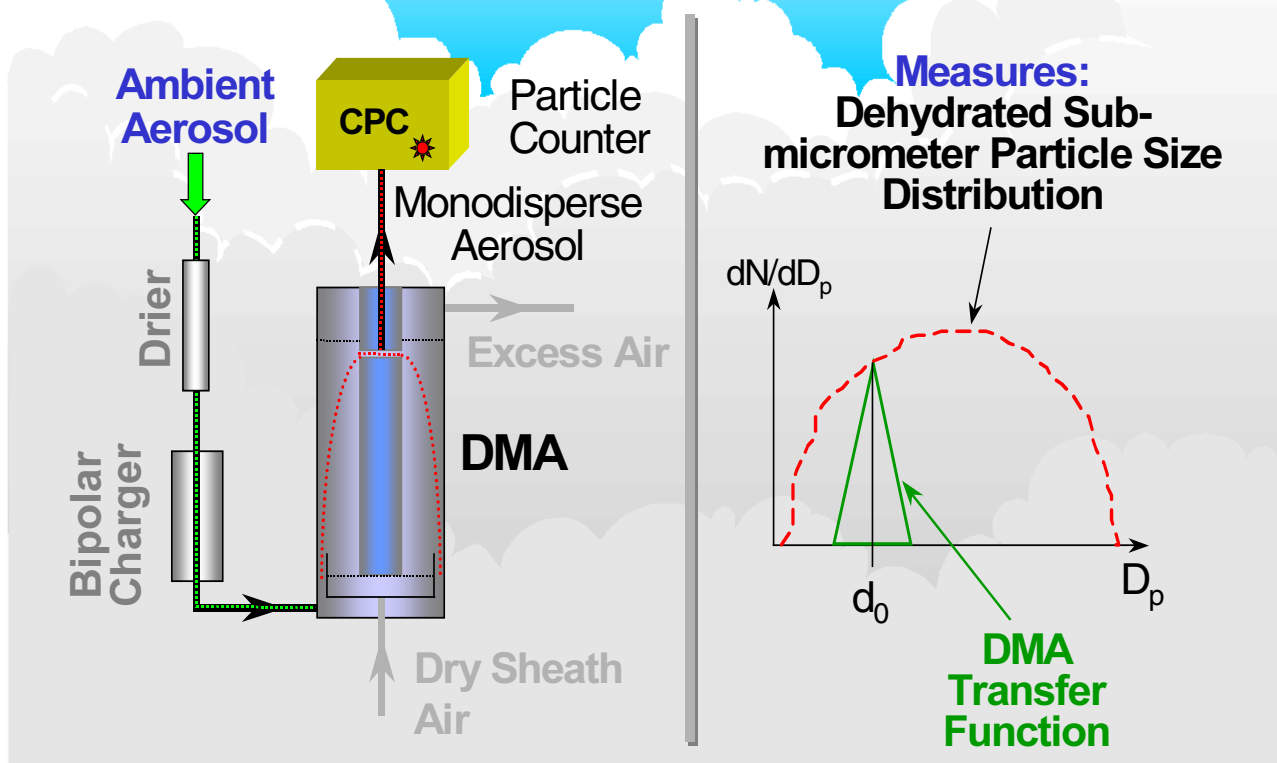
Hilton, Copenhagen Airport, Denmark



LUNDS  
UNIVERSITET

*resundsuniversitetet*

## Differential Mobility Particle Sizer DMPS

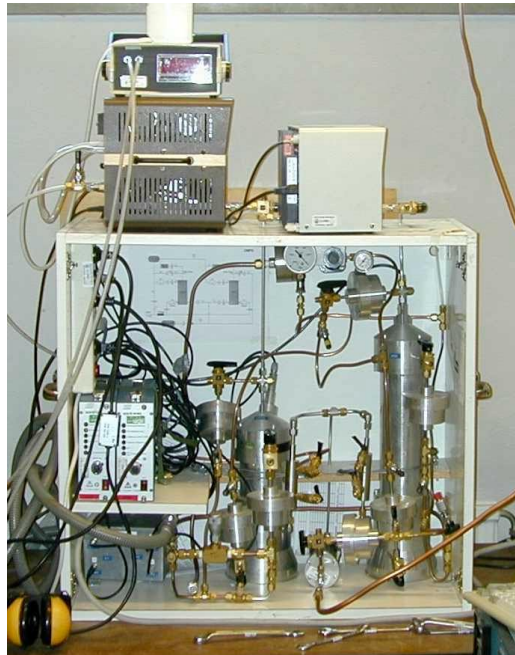


# Differential Mobility Particle Sizer - DMPS

Single DMA system  
20-850 nm



Twin-DMPS (2 DMAs, UCPC, CPC)  
3-850 nm

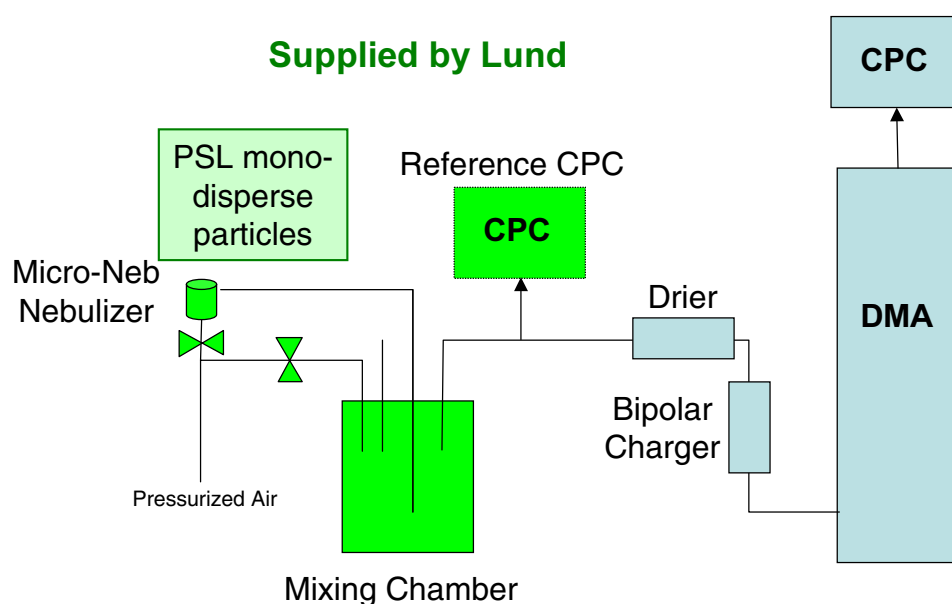


## DMPS Intercomparison

### Options

- Bring all DMPS systems to Lund
- Bring an intercomparison (Lund) DMPS to all participants
- Standardized aerosol generator and test protocol to all participants
  - Polystyrene Latex monodisperse particles  
(as small as possible + 100-200 nm)  
Testing for: Sizing, bipolar charging
  - Reference CPC  
Testing for: Absolute Counting Efficiency, Mobility Spectrum Inversion,  
DMA Transmission Function (Area, Broadening)

# DMPS Intercomparison Set-up



	Name	Address	eBusiness	Example
1	<b>micro particles GmbH</b> Dr. Karl-Heinz Lerche	Volmerstr. 9A UTZ, 3.51 D-12489 Berlin  Tel: +49-30/6392 2565 Fax: +49-30/6392 2555	Web: <a href="http://www.microparticles.de">www.microparticles.de</a> eMail: <a href="mailto:info@microparticles.de">info@microparticles.de</a>	# PS-ST-0.1 PSL 106 ± 3 nm (15 ml, 2% sol.): € 117
2	<b>DISTRILAB BV</b> (European Distributor of Duke Scientific Corp., Palo Alto, CA)  Ms. Helen Ritzer	Olmenlaan 6-c PO Box 130 NL-3830 LEUSDEN  Tel: +31-33/494 7834 Fax: +31-33/432 1441	Web: - ( <a href="http://www.dukescientific.com">www.dukescientific.com</a> ) eMail: <a href="mailto:info@distrilab.nl">info@distrilab.nl</a>	# 3100A PSL 102 ± 3 nm (15 ml, 1% sol.): 209
3	<b>Polymer Standards Service GmbH</b>  Mr. Kiltz	Wöhlerstr. 2-6 D-55023 Mainz  Tel: +49-6131/962 39 60 Fax: +49-6131/962 39 11	Web: <a href="http://www.polymer.de">www.polymer.de</a> eMail: <a href="mailto:info@polymer.de">info@polymer.de</a>	# 653100A PSL 102 ± 3 nm (15 ml, 1% sol.): 250
4	<b>POSTNOVA ANALYTIK GmbH</b>  Dr. Thorsten Klein	Frankfurter Ring 193a D-80807 München  Tel: +49-89/324 797 90 Fax: +49-89/324 797 91	Web: <a href="http://www.postanova.com">www.postanova.com</a> eMail: <a href="mailto:info@postanova.com">info@postanova.com</a>	# 000-0,1a-1 PSL 102 ± 4 nm (15 ml, 1% sol.): 255
5	<b>Polysciences Europe GmbH</b> (Subsidiary of Polysciences Inc., Warrington, PA)  Ms. Chris McCollough	PO Box 11 30 D-69208 Eppelheim  Tel: +49-6221/76 57 67 Fax: +49-6221/76 46 20	Web: <a href="http://www.polysciences.de">www.polysciences.de</a> eMail: <a href="http://www.polysciences.de">www.polysciences.de</a>	#21755-15ML PSL 100 nm (15 ml, 2% sol.) 300 incl. porto

*Others:*

- |   |  |   |   |
|---|--|---|---|
| 6 | <b>ITS<br/>Intertek Testing Services -<br/>Centre Technique de<br/>Metrologie</b><br>(French Distributor of Duke<br>Scientific Corp., Palo Alto, CA) | 19, rue des Mesliers<br>F-35510 Cesson-Sevigne<br><br>Tel: +33-2-99 22 81 22<br>Fax: +33-2-99 41 71 70      | Web: -<br>eMail: info@its-ctm.com                       |
| 7 | <b>Brookhaven Instruments<br/>Ltd.</b><br>(UK & IRL Distributor of Duke<br>Scientific Corp., Palo Alto, CA)  | Chapel House, Stock Wood<br>Redditch, Worcs., B96 6ST<br><br>Tel: +44-1386/792 727<br>Fax: +44-1386/792 720 | Web: -<br>eMail:<br>enquiries@brookhaven.co.<br>uk      |
| 8 | <b>PAESEL + LOREI GmbH &amp;<br/>Co.</b>   | Moselstr. 2b<br>D-63452 Hanau<br><br>Tel: +49-6181/18 70 0<br>Fax: +49-6181/18 70 70                        | Web: www.paesel-lorei.de<br>eMail: info@paesel-lorei.de |

## EMEP Station Vavihill (Lund)

Twin-DMPS 3-850 nm, 10-min

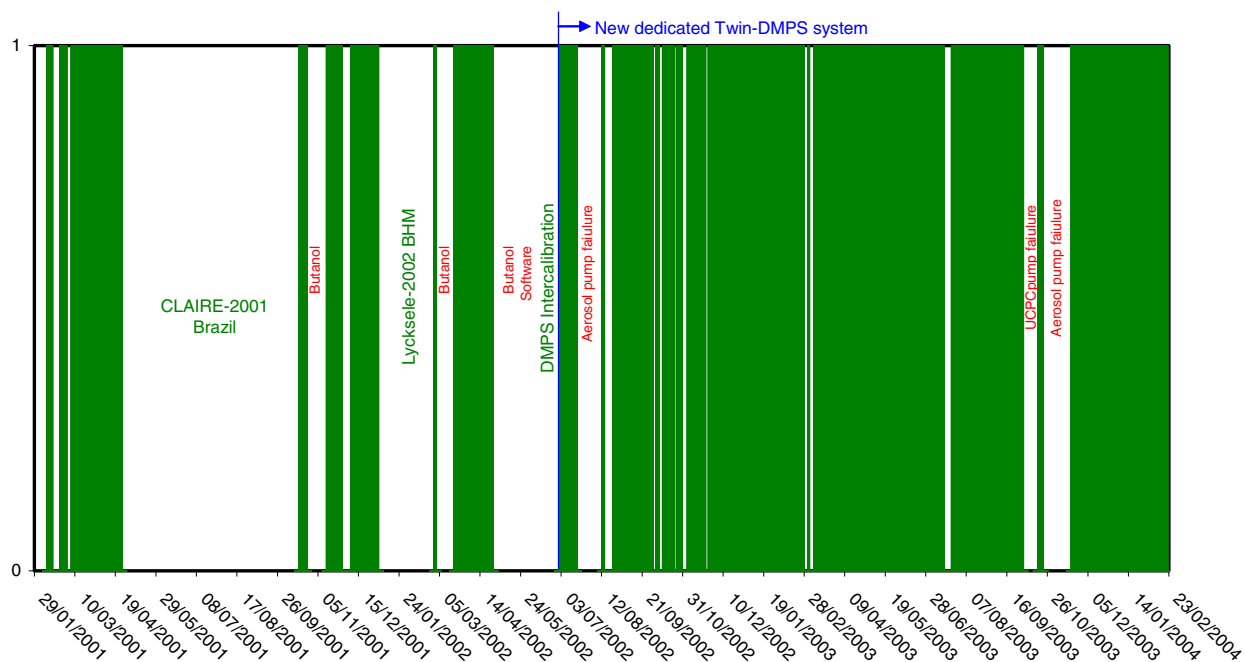


TEOM PM2.5 + PM10 data from 2000  
Hourly averages



# Lund Vavihill DMPS Data Availability

## DMPS Data Availability Vavihill (Lund Aerosol Group)



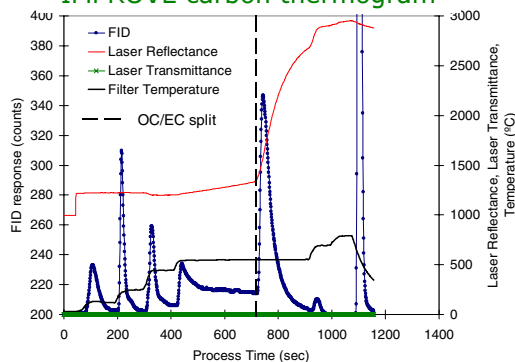
## DRI Model 2001 OC/EC Thermal Optical Carbon Analyzer

Atmoslytic Inc., 24801 Alexandra Ct., Calabasas, CA 91302, USA

**OC/EC analytical protocols:**  
IMPROVE, NIOSH 5040, and other variants of NIOSH 5040 like USEPA-STN, Canadian-MS1, and Hong Kong-TOT, carbonate determination

**Pyrolysis correction:**  
Both reflectance and transmittance (He-Ne laser)

### IMPROVE carbon thermogram



# **Lund Aerosol Group**

## **NMR Related Projects 2004-2006**

### **MISTRA-ASTA (CLRTAP, Vavihill)**

(MISTRA→2004)

### **Swedish EPA (PM2.5-PM10 Vavihill)**

(1999→)

### **Swedish FORMAS**

#### **Health effects of fine particles (Lung deposition)**

Urban background (Lund, Malmö?)

Street canyon

(2004-2006)

### **Swedish Vägverket**

#### **Model development for urban PM10 (Health effects)**

Wear particles Road-tire interface (VV, 2002-2004)

#### **Road and tire wear particles (Health effects)**

Road simulator (VV→2004)