

## 2nd SUMMER SCHOOL

### **“Advanced Treatment and Management of Sewage Sludge”**

*Organised by the Biotechnology Research Group of the University of Barcelona (Chemical Engineering Department)*

6th -10th July, 2009

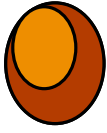
**The Summer School “Advanced Treatment and Management of Sewage Sludge” aims to offer the attendants a scientific and practical overview of the main technical solutions to manage the sludge coming from wastewater treatment plants. It will consist in 25 hours of expositions and 9 hours of practical seminars focused in applying the theoretical contents offered previously.**

**New aspects related to the sludge reology and its practical consequences, together with modern methods of sludge minimization will accompany the most advanced biological and thermal methods for recovery of materials or energy. Pretreatments to increase the biodegradability of sludge will also be tackled in the School.**

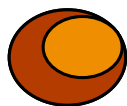
**The three practical seminars will be devoted to the identification of microorganisms affecting their settling characteristics (of quite relevance for practical operation of a plant), the practical design of a unit for thermal pre-treatment of sludge and finally, the use of commercial simulation programs to solve problems related to sludge management.**

**The Summer School is suited for Ph-D students of Environmental Engineering interested in sludge treatments and professionals from Water Engineering Companies or Water Authorities.**

More information: [sludge@angel.qui.ub.es](mailto:sludge@angel.qui.ub.es)



	Monday	Tuesday	Wednesday	Thursday	Friday
8.30	<p><b>Welcome</b>  <b>Sludge types and characteristics</b>  <b>Sludge reology (UB)</b>            1 hour J. Mata / J. Llorens</p>	<p><b>Fundamentals of biological treatment of sludge (UB)</b>            1 hour J. Mata</p>	<p><b>Introduction to Sludge pretreatments</b>            Biological, thermal, ultrasounds, other (INRA Narbonne)            1 hour H. Carrère</p>	<p><b>Introduction to Thermal treatment of sludge. Sludge drying.</b>  <b>Fundamentals of incineration (UB)</b>            2 hours J. Labanda</p>	<p><b>Design of modern incinerators (UB)</b>            1 hour J. Labanda</p>
9.30	<p><b>Sludge reology: practical applications (UB)</b>            1 hour J. Llorens</p>	<p><b>Anaerobic digestion/codigestion Two-phase digestion (UCA)</b>            1 hour L.A. Fdez. Güelfo</p>	<p><b>Fundamentals of Ultrasound pretreatment (UB)</b>            1 hour T. Benabdallah</p>		<p><b>Co-combustion</b>  <b>Example: Cement Factories (UPC)</b>            1.5 hour A. Josa</p>
10.30-11.00					
11.00	<p><b>Methods of sludge minimization (chemical uncouplers) (UCA)</b>            1 hour C.A. Aragón</p>	<p><b>Aerobic Autothermic Thermophilic treatment (CEIT)</b>            1 hour J.L. García de las Heras</p>	<p><b>Fundamentals of Ozonization pretreatment (INRA)</b>            1 hour H. Carrère</p>	<p><b>Gasification of sludge</b>  <b>Advanced gasification and plasma</b>  <b>Pyrolysis of sludge (UniZar)</b>            2.5 hours J. Arauzo</p>	<p>11.00-11.30  <b>Recycling as other products (activated carbon) UdGi</b>            1.5 hours M. Martín</p>
12.00	<p><b>Sludge microbial characteristics (UB)</b>            1.5 hours H. Salvadó</p>	<p><b>Hydrothermal oxidation of sludge (UCA)</b>            1.5 hours J.R. Portela</p>	<p><b>Effects of pretreatments on microcontaminants (USC)</b>            1.5 hours F. Omil</p>		
13.30-15.00					
15.00	<p><b>Microcontaminants in Sewage Sludge Identification (CSIC)</b>            1.5 hours D. Barceló</p>	<p><b>Practical seminar: Practical Identification of microorg affecting settling (bulking) (UB)</b>  <i>In laboratory</i>            3 hours H. Salvadó</p>	<p><b>Practical seminar: Thermal pretreatment of sludge. Example of thermal design (UVA)</b>            3 hours S.I. Pérez Eivira</p>		
16.30	<p><b>Ecotoxicological effects of microcontaminants (UMur)</b>            1.5 hours A.J. García Fernández</p>			<p><b>Practical Seminar: Use of simulation programs for the treatment of sludge (CEIT)</b>            3 hours E. Ayesa</p>	
18.00					



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**Registration:** Fill in the attached registration form and send it by e-mail to [sludge@angel.qui.ub.es](mailto:sludge@angel.qui.ub.es), no later than 1<sup>st</sup> July. Applicants to grants have to send the registration form together with their CV before 30<sup>th</sup> April.

**Grants:** Two types of grants are offered to students covering: A) Registration and B) Registration + Accommodation (from Sunday 5<sup>th</sup> to Friday 10<sup>th</sup> of July, in individual rooms of *Col·legi Major Sant Ramon de Penyafort*).

Participants awarded with a grant will be notified by e-mail as soon as possible and no later than 15<sup>th</sup> June.

### REGISTRATION FEES:

Fees: Whole course: 2000 Euros

1 day attendance: 600; 2 days: 1000; 3 days: 1400; 4 days: 1700 Euros

It will cover course material, coffees, lunches and the farewell dinner.

These fees have to be paid no later than 8<sup>th</sup> July 2009 by bank transfer to:

Account holder: PROCITEC

Bank name: La Caixa

Bank address: C/ Santa Amèlia 31. 08034 Barcelona

Iban: ES74 2100 3466 7122 0004 6015

Swift/Bic: CAIXESBB

### Suggested accommodation:

Col·legi Major Sant Ramon de Penyafort: <https://www.penyafort.ub.es/>  
Single rooms available at 52.60 €/night (7% VAT not included).

Except for grant holders, you have to make the hotel reservation by yourself. Please take into account that Barcelona is a very popular city for tourists in July, so make the hotel reservation as soon as possible. Some nearby hotels are the following:

- Hotel Arenas – [www.hotelhusaarenas.com](http://www.hotelhusaarenas.com) – C/ Capitán Arenas nº 20. 08034 Barcelona
- Hotel NH Numancia – [www. http://www.nh-hoteles.es](http://www.nh-hoteles.es) – C/ Numancia nº 74. 08029 Barcelona
- Hotel HCC Covadonga - <http://www.hcchotels.es/cast/covadonga.html> - Avda Diagonal 596. 08021 Barcelona
- Hotel Bonanova Park - <http://www.husa.es/es/fichaHotel.php?id=24> – C/ Capitán Arenas nº 51. 08034 Barcelona
- Hotel Prisma – <http://www.mediumhoteles.com> – Avda. Josep Tarradellas 119-121. 08029 Barcelona



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**2nd SUMMER SCHOOL**  
***“Advanced Treatment and Management of Sewage Sludge”***

**REGISTRATION FORM**

To be mailed or faxed to:  
**SLUDGE COURSE SECRETARIAT**  
**Martí i Franquès 1, 08028 BARCELONA (Spain)**  
**Tel +34 93 4021305 Fax +34 93 4021291**  
**e-mail: [sludge@angel.qui.ub.es](mailto:sludge@angel.qui.ub.es)**

Name ..... First Name .....

Company .....

Address .....

Zip Code ..... City ..... Country .....

Tel ..... Fax .....

e-mail .....

VAT number .....

**OPTION:**            **A**             **B**             **C**             **D**             **E**   
**(see below)**

## TERMS OF PAYMENT

Please, send by fax (+34 93 4021291) or e-mail ([sludge@angel.qui.ub.es](mailto:sludge@angel.qui.ub.es)):

- 1) A copy of the bank transfer (or credit card details)
- 2) The filled registration form

Please specify the last name of the participant and company name and attach a copy of the bank transfer to ensure your registration.

## OPTIONS

- A) Whole course: 2000 €
- B) 4 days attendance: 1700 €
- C) 3 days attendance: 1400 €
- D) 2 days attendance: 1000 €
- E) 1 day attendance: 600 €

Methods of payment are the following:

- Bank Transfer to PROCITEC on **Acct. No. 2100 3466 71 2200046015**  
La Caixa. C/ Santa Amèlia 31. 08034 Barcelona  
IBAN: ES7421003466712200046015 (electronic format).  
IBAN ES74 2100 3466 7122 0004 6015 (paper format)  
SWIFT: CAIXESBBXXX
  
- Credit Card no:            
Exp. Date:   /   /    
Credit card holder:  
VISA  Eurocard  Diners Club  Mastercard   
Date:   /   /

Signature:

<b>Euros</b> _____
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