

# Summer School in High Energy Processing Ultrasound & Microwave Technologies

Faculty of Chemical Engineering and Technology, Cracow University of Technology, Poland

9 – 12 September 2015

(Sponsored by ESS & AMPERE)

- **Location:** Faculty of Chemical Engineering and Technology, Warszawska 24, 31-155 Cracow (bus station POLITECHNIKA)
- The Summer School is limited to 40 participants. All coffee (from Wednesday to Saturday) and lunches (Thursday and Friday) will be provided by the organizing committee.
- **Registration fee for the ESS Summer School (bank transfer) is:**  
Students and Ph.D. students      100 Euros  
Post-Doc, researchers, professors   200 Euros  
Industry participants                  300 Euros
- A free welcome party will be arranged for 9<sup>th</sup> September at 6 p.m.
- A conference dinner will be arranged for 10<sup>th</sup> September 2015. This can be paid for at the point of registration.
- **Travel:** Direct flights to Cracow Airport (+ bus or taxi)
- **Accommodation:** **We can offer accommodation in the student hostel (ca. 12 Euro/day).**
- **Please note:** As this is a peak summer season in Cracow reservation for accommodation should be made as soon as possible

## ESS & AMPERE Summer School Agenda 2015

Wednesday 9<sup>th</sup> September 2015

Time	Activity
12.00 – 13.30	Registration
13.45 – 14.00	Prof. D. Bogdal with Prof. G. Cravotto (ESS President) Welcome and Reception
14.00 – 15.30	Introduction to Ultrasound (US) – prof. D. Walton <ul style="list-style-type: none"><li>• Background and theory</li><li>• Mechanochemical effects of acoustic cavitation</li></ul>
15.30 – 15.45	Coffee break
15.45 – 17.15	Introduction to Microwave (MW) – prof. D. Bogdal <ul style="list-style-type: none"><li>• MW Interactions with matter</li><li>• Multimode and Single mode cavities – dr. D. Carnaroglio</li><li>• Nanoparticles preparation – dr. K. Matras-Postolek</li></ul>
18.00	Welcome party

### Thursday 10<sup>th</sup> September 2015

Time	Activity
9.15 – 11.00	Application of ultrasound and microwaves in green extraction, new tools and equipment – prof. G. Cravotto
11.00 – 11.15	Coffee break
11.15 – 13.30	Microwave enhanced inorganic chemistry – prof. C. Leonelli <ul style="list-style-type: none"> <li>• Solid state reactivity</li> <li>• Combustion synthesis</li> <li>• Applications of Microwaves in ceramic processing</li> <li>• Applications of Microwaves in polymer synthesis and processing – prof. D. Bogdal</li> </ul>
13.30 – 14.45	Lunch
15.00 – 17.30	Practical laboratories – Microwaves MW (Milestone) – dr. D. Carnaroglio Ultrasound applications (REUS) – Mr. R. Di Paolo
20.00	<b>Official Summer School Dinner</b>

### Friday 11<sup>th</sup> September 2015

Time	Activity
9.15 – 11:00	Microwave enhanced organic chemistry – prof. G. Bond <ul style="list-style-type: none"> <li>• Homogeneous reactions</li> <li>• Solvent free reactions</li> </ul>
11.00 – 11.15	Coffee break
11.15 – 12.30	Design and selection of microwave applicators – prof. C. Leonelli Industrial Applications (MW in pollution abatement)
12.30 – 13.30	<b>Preparation of inorganic materials using ultrasound</b> prof. C. Argiris (ESS Treasurer)
13.30 – 14.45	Lunch
15.00 – 17.30	Practical laboratories – Microwaves MW – (Milestone) – dr. D. Carnaroglio Ultrasound applications (REUS) – Mr. R. Di Paolo

### Saturday 12<sup>th</sup> September 2015

Time	Activity
9.05 – 10.00	Synthetic chemistry through the combined use of ultrasound and microwaves – Prof. B. Ondruschka
10.00 – 11.00	Microwaves, ultrasound and hydrodynamic cavitation in process intensification - Prof. B. Ondruschka
11.00 – 11.15	Coffee break
11.15 -- 12.15	Ultrasound: a tool for advanced features in heterogeneous catalysts - Prof. C. Bianchi
12.15 – 12.30	Final remarks with Prof. C. Leonelli (Ampere President) Leave-taking

**Contact persons:**

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**Organizer/Beneficiary:**

Cracow University of Technology

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SWIFT code: BPHKPLPK

IBAN: PL

Pls. indicate on the transfer slip:

"AMPERE 2015 School EUR – Name and surname"

or

"AMPERE 2015 School PLN – Name and surname"

**Full information on**

**[www.ampere.pk.edu.pl/summer-school](http://www.ampere.pk.edu.pl/summer-school)**