

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, Poland (bus station POLITECHNIKA).
- The Summer School is limited to 40 participants.
- **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
- All coffee (from Wednesday to Saturday) and lunches (Thursday and Friday) will be provided by the organizing committee.
- A free Welcome Party will be arranged for 9th September at 6 p.m.
- A Conference Dinner will be arranged for 10th September 2015. This can be paid for at the point of registration.
- **Travel:** Direct flights to Cracow Airport (+ bus or taxi to reach downtown)
- **Accommodation:** Please arrange your own accommodation directly with the student's residence or hotels which will be listed on school website.
- **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 Provisional Program 2015

(Lectures list has to be completed)

Wednesday 9th September 2015

Time	Activity
12.00 – 13.30	Registration
13.45 – 14.00	Prof. D. Bogdal – Welcome and Reception
14.00 – 15.30	Introduction to Ultrasound (US) <ul style="list-style-type: none">• Background and theory• Designs of ultrasonic equipment
15.30 – 17.00	Introduction to Microwave (MW) <ul style="list-style-type: none">• MW Interactions with matter• Multimode and Single mode cavities• Nanoparticles preparation
18.00	Welcome party

Thursday 10th September 2015

Time	Activity
9.05 – 11.00	<ul style="list-style-type: none">• Ultrasound in food technologies and environmental protection• Applications of ultrasound and microwave in extraction, new tools and equipments
11.00 – 11.15	Coffee break
11.20 – 13.30	Microwave enhanced inorganic chemistry <ul style="list-style-type: none">• Solid state reactivity• Combustion synthesis• Applications of Microwaves in ceramic processing• Applications of Microwaves in polymer processing
13.30 – 14.45	Lunch
15.00 – 17.30	Practical laboratories – Ultrasound and Microwaves US & MW
20.00	Official Summer School Dinner

Friday 11th September 2015

Time	Activity
9.05 – 10.10	<ul style="list-style-type: none">• Applications of sonochemistry in medicine
10.10 – 11.00	<ul style="list-style-type: none">• Mechanochemical effects of acoustic cavitation
11.00 – 11.15	Coffee break
11.20 – 12.30	Microwave enhanced organic chemistry <ul style="list-style-type: none">• Homogeneous reactions• Solvent free reactions
12.30 – 13.30	Dielectric properties measurement: introduction to numerical simulation for reactor design <ul style="list-style-type: none">• Design and selection of microwave applicators• Industrial Applications (MW in pollution abatement)
13.30 – 14.45	Lunch
15.00 – 17.30	Practical laboratories – Ultrasound and Microwaves US & MW

Saturday 12th September 2015

Time	Activity
9.05 – 10.00	Synthetic chemistry through the combined use of ultrasound and microwaves
10.00 – 11.00	Microwaves, ultrasound and hydrodynamic cavitation in process intensification
11.00 – 11.15	Coffee break
11.20 – 12.00	Prof. D. Bogdal and co-workers – Final remarks Leave-taking