Plenary lectures presented in the Assembly Hall - marked with RED (first floor)

Sessions in room 30 – marked with BLUE (first floor)

Sessions in room 56 – marked with VIOLET (second floor)

Sessions in room 52 – marked with GREEN (second floor)

Catering – coffee breaks, lunches – is served just above the Main Hall (third floor)

Program of 9th ISHPMIE

Sunday, July 22 2012
14.00-18.00 Registration, Cracow University - Collegium Novum building, Entrance Hall
19.00-21.00 Welcome Reception, Collegium Novum building, Entrance Hall

Monday, July 23 2012
9.00-10.00 Registration, Collegium Novum, Entrance Hall
10.00-10.45 Opening Ceremony, Collegium Novum Assembly Hall
10.45-12.05 Plenary Lecture, Chair: P. Wolanski
R. Klemens: Explosions of Industrial Dusts – From Ignition Source to Suppression
12.05-12.20 Coffee Break
12.20-13.50

Session 1, Room 30: Ignition, Chair: R. Eckhoff
• Langer T., Markus D., Maas U.: Temperature Measurement inside Incendive RepetitiveStreamer Discharges
• Papp C., Brandes E., Hirsch W., Marx M: Autoignition temperatures of flammable liquids in closed vessels
Session 2, Room 56: **Flame propagation, Chair: E. Brandes**
- Pedersen H., Tomlin G., Middha P., Phylaktou H., Andrews G.: *Comparison of FLACS Simulations against Large-Scale Vented Gas Explosion Experiments in a Twin Compartment Enclosure*
- Klippel A., Scheid M., Krause U.: *Investigations into the Influence of Dustiness on Dust Explosions*

Session 3 Room 52: **Hydrogen Safety, Chair: V. Molkov**
- Frolov S.M., Emans M., Ivanov V.S., Basara B., Leshevich V.V., Penyazkov O.G.: *On the adequacy of interpreting ignition delay data for hydrogen in a rapid compression machine*
- Lee B.J., Jeung In-S., Nikiforakis N.: *Effect of downstream geometry on spontaneous ignition of pressurized hydrogen bursten in the pipe*

13.50 – 14.50 Lunch
14.50 – 16.20

Session 4 Room 30: **Explosion Protection in Practice, Chair: P. Amyotte**
- Meye T., Brandes E., Hoeding M., Busse S.: *Safety Characteristic at non–atmospheric conditions - oxidizers other than air*
- Munier L.: *Experimental study of high velocity impact on a liquid storage*
- Mynarz M., Serafin J., Lepik P., Simonik Z.: *Experimental investigation of deflagration characteristics for venting of gas explosion and their verification of CFD analysis*

Session 5, Room 56: **Flame propagation, Chair: Y. Shebeko**
- Skjold T., Castellanos D., Olsen K.L., Eckhoff R.K.: *Experimental and numerical investigations of constant volume dust and gas explosions in a 3.6 metre flame acceleration tube*
- Koyanaka S., Nifuku M., Usuba S, Matsunaga T.: *A prevention way and detection of ignition source for dust explosions in wastes recycling*

Session 6 Room 52: **Detonation, DDT, Chair: R. Zalosh**
- Wolanski P.: *Stability of the rotating detonation wave*
- Kuznetsov M., Grune J., Rudy W., Teodorczyk A.: *Detonation Initiation and Propagation in a semiconfined layer of hydrogen–air mixture*
- Semenov I., Utkin P., Akhmedyanov I., Demidov N.: *Multidimensional modeling of detonation initiation in natural gas-air mixtures*

16.20-16.35 Coffee Break
16.35 – 18.35

Session 7, Room 30: **Gas and Dust Explosibility, Chair: K. Lebecki**
- Bernard S., Gillard P., Aidi N.: *Explosibility of partially oxidized aluminium dust, influence of water contents in the oxide layer of the dusts*
• Opoku M.K., Dlugogorski B.Z.: *Preparation and characterisation of potassium ammonium nitrates (K$_x$(NH$_4$)$_{1-x}$NO$_3$)*

**Session 8 Room 56: Explosive Mixtures in Industrial Conditions, Chair: I. Sochet**
• Zalosh R., Elias B., Banks J., Tyler L., Chicca D., Saenz M., Mazzocchi M., Morgan Ch.: *Combustible Metal Dust Flash Fire Hazard Characterization*
• Molina J., Blandon A.: *Evidences of participation of coal dust in underground mine explosion*
• Strozzi C., Gillard P.: *Prediction of the pressure evolution during the explosion of kerosene vapors for aircraft tank vulnerability studies*
• Haggith D., Sobiesiak A., Miller L.: *Effects of Fuel Composition Variations (H$_2$: CO) for Biomass Gas HCCI Combustion*

**Tuesday, July 24 2012**

8.30-9.00 Registration
9.00-9.45 Plenary lecture, Chair: S. Frolov
  F. Tamanini: *Research on the Behavior of Silane Releases*
9.45-10.00 Coffee Break
10.00-11.30

**Session 9 Room 30: Hydrogen Safety, Chair: J. Yanez**
• Miwada C., Mogi T., Dobashi R.: *Turbulent effect in spontaneous ignition of high-pressure hydrogen during sudden discharge*
• Andrews G.E., Mkpadi M., Gardner C., Phylaktou R.: *Explosions after Sudden Release of Hydrogen into a Large Closed Volume where the Overall Mixture is Not Flammable*
• Medic Pejic L., Torrent Garcia J., Lebecki K.: *A methodology for evaluation of explosion risk in underground coal mines*

**Session 10 Room 56: Gas and Dust Explosibility, Chair: M. Pegg**
• Cloney C.T., Ripley R.C., Amyotte P.R., Khan F.: *Quantifying the Effect of Strong Ignition Sources on Particle Preconditioning and Distribution in the 20-L Chamber*
• Eckhoff R.K.: *Influence of dispersibility and coagulation on the dust explosion risk presented by powders consisting of nm-particles*
• Gao W., Dobashi R., Mogi T., Sun J., Shen X.: *Effects Of Particle Materials on Flame Propagation Behavior during Organic Dust Explosions In a Half-Closed Chamber*

11.30-11.45 Coffee Break
11.45 – 13.15

**Session 11, Room 30: Hydrogen Safety, Chair: D. Pavel**
• Sabard J. Goulier J., Chaumeix N., Studer E., Bentaib A.: *Determination of explosion combustion parameters of H$_2$ O$_2$N$_2$ mixtures*
• Kuznetsov M., Yanez J., Grune J., Jordan T.: *Flame instability of lean hydrogen-air mixtures in a smooth vertical channel with open end*
• Bourgin E., Bauwens L., Fachini Filho F.: *Role of the Lewis number in diffusion ignition of hydrogen jets*
Session 12, Room 56: Gas and Dust Explosibility, Chair: R. Dobashi
- Huescar C., Phylaktou H.N., Andrews G.E., Gibbs B.M: Determination of the minimum explosible and most reactive concentrations for pulverised biomass using a modified Hartmann apparatus
- Qingming Liu, Yunming Zhang, Fang Niu, Lei Li: Study on the flame propagation and gas explosion in propane/air mixtures
- Russo P., Amyotte P.R., Khan F.I., Di Benedetto A.: Modeling of the effect of size on flocculent dust explosions

13.15-14.15 Lunch
14.15-16.00

Session 13 Room 30: Explosion Mitigation/Protection Techniques, Chair: F. Tamanini
- Chao J., Dorofeev S.B.: A Methodology to Evaluate the Efficiency of a Flameless Explosion Venting Device
- Bauwens C.R., Chao J., Dorofeev S.B.: Evaluation of a multi peak explosion vent sizing methodology
- Girin A., Goncharova Y.O.: Mitigation of blast shock wave by a safety dust screen

Session 14 Room 56: Ignition, Chair: U. Krause
- Salamonowicz Z., Polka M., Wolinski M., Kufisz B.: Ignition of a dust layer on a hot surface
- Simon L.H., Wilkens V., Fedtke T., Beyer M.: Ignition of dust-air atmospheres by ultrasonic waves
- Gillard P., Longuet B.: Investigation of heat transfer and heterogeneous reactions during the slow Cook Off of a composite Propellant

16.00-16.15 Coffee Break
16.15-16.15

Session 15 Room 30: Explosion Consequences Analysis, Chair: H. Vaudrey
- Chao J., Bauwens C.R., Dorofeev S.B.: Hazards Due to Accidental High-Pressure Releases of Silane
- Girin A.: Attenuation of Shock wave from a point of blast in a dusty air
- Sippel M., Barth U.: Assessment of Explosion Load and Explosion-Resistant Design for “Real-Scale” Applications
- Girin A., Kopyt Kh.: Dynamic of blast wave in premises

Session 16, Room 56: Explosion Mitigation/Protection Techniques, Chair: A. Tascon
- Bauwens C.R., Dorofeev S.B: Comparison of VCE Blast Prediction Methods with Historical Accident Data
- Sustek J., Janovsky B.: Comparison of empirical and semi empirical equations for vented gas explosion with experimental data
Excursion to the mountains, rafting

**Thursday, July 26, 2012**

8.30-9.00 Registration

9.00-9.45 **Plenary lecture, Chair:** V. Molkov: *Safety of hydrogen and fuel cell technologies and infrastructure: the state-of-the-art*

9.45-10.00 Coffee Break

10.00-12.00

**Session 17 Room 30: Detonation, DDT, Chair: B. Dlugogorski**

- Skacel R., Janovsky B., Dostal L., Shikovsky J.: *Small-scale physical explosions in shock tube in comparison with condensed high explosive detonations*
- Kobiera A.: *A Simple Theory of Rotating Detonation and its Application to Turbine Thermodynamic Cycle*
- Paplinski A., *Evaluation of Detonation parameters of air suspensions of energetic liquids*

12.00-13.30 Lunch

13.30-15.00

**Session 18 Room 56: Case studies, Chair: B. Janovsky**

- Kauffman C.W., Amyotte P.R., Gillies S., Lebecki K.: *The Upper Big Branch Coal Mine Explosion*
- Kotelnikov V., Martynyuk V., Saygina J.: *Causes study of explosion on reservoir park «KONDA»*
- Kleimenov A., Kotelnikov V., Martynyuk V., Esieva E.: *Multiple Pipe Explosion at Orenburg Helium Plant*
- Ishikawa D., Matsuo A., Makarov D., Molkov V.: *Towards Numerical Simulations of the Hydrogen-Air Deflagration in Fukushima-Daiichi Nuclear Power Plant Unit No.1*

15.00-15.15 Coffee Break

15.15-17.15

**Session 21, Room 30: Gas and Dust Explosibility, Chair: T. Skjold**

• Castellanos D, Carreto V., Mashuga C., Trottier R., , M.Sam ,Mannan: The effect of Particle Size Polydispersity on the Explosibility Characteristic of Aluminium Dust
• Bernard S., Youninou L, Gillard P.: Ignition and degradation of PA12 polymer powder

Session 22 Room 56: Measurement Techniques, Chair: D. Ishikawa
• Scheid M., Kusche C., Schroeder V., Barth U., Test on suitability of the ignition source “exploding wire” for the determination of the explosion characteristics of combustible dust in the 20 l sphere
• Schmidt M., Wanke Ch., Krause U.: Determination of measurement uncertainties in adiabatic hot storage experiments for flammable dusts
• Pekalski A, Dyduch Z.: Methods for more accurate determination of explosion severity parameters

19.00 -23.00 Banquet at the Underground Chamber of the Wieliczka Salt Mine

Friday, July 27 2012
9.00-9.30 Registration
9.00- 9.45 Plenary lecture, Chair: P. Gillard
A.Fedorov: Mathematical Modeling in the Gas –Reactive Particles Mixtures

9.45-10.00 – Coffee Break
10.00-12.00

Session 23 Room 30: Explosive Mixtures in Industrial Conditions, Chair: M. Nifuku
• Woo-Kyung KIM, Mogi T., Dobashi R.: Flame Acceleration in Unconfined Hydrogen/air deflagrations by using infrared photography
• Miyake A., Okuno A.: Risk assessment of compressed natural gas fueling stations
• Na’Inna A.M., Phylaktou H.N., Andrews G.E.: The Acceleration of Flames in Tube Explosions with Two Obstacles as a Function of the Obstacle Separation Distance

12.00- 12.15- Coffee Break
13.30—13.30 Farewell Lunch