

SYMPHOS 2019 Program

Sunday, October 6th 2019

4:00pm - 7:00pm Registration

Monday, October 7th 2019

8:00am - 10:00am Reception and Registration

10:00am - 10:30am OPENNING CEREMONY

10:30am - 11:15am **Plenary 1: The emerging era of entrepreneurs for the common good**, Gunter Pauli, Professor , best-selling author and founder of ZERI (Zero Emissions Research and Initiatives), Author of the “blue economy”, Belgium
IBN ROCHD Auditorium

11:15am - 12:00pm EXHIBITION and POSTERS INAUGURATION

12:00pm - 1:15pm Lunch

1:15pm - 2:00pm **Plenary 2: Renewable hydrogen for ammonia synthesis**, Siew Hwa Chan, Professor, Nanyang Technological University, Singapore.
IBN ROCHD Auditorium

	FERTILIZERS/PROCESS	HYDROGEN & GREEN AMMONIA	PHOSPHATE BENEFICIATION	"P" RECOVERY, SUSTAINABILITY & CIRCULAR ECONOMY	SULPHUR & SULFURIC ACID				
	IBN ROCHD Auditorium	AL KHAWARISMI Room	FATIMA AL FIIHRIA Room	IBN SINA Room	IBN TOFAIL Room				
2:00pm - 2:20pm	CO1: "Ultimate Granulation Plant", <u>Chris Dennis & Soukaina ETTOUIMJ</u> , Jacobs Engineering, US & Jacobs Engineering SA, Morocco	CO1: "Novel reactor concepts for hydrogen and nitrogen production for cost effective low carbon footprint ammonia production", <u>Abdelghafour Zaabout & Shahriar Amini</u> , SINTEF Industry, Norway	CO1: "What's the ideal method to dewater tailings?", <u>Christophe Bellot</u> , WEIR Minerals, The Netherlands	CO1: "Global economic potential of phosphorus recovery from wastewater alongside rock based phosphorus for agriculture", <u>Saket Pande</u> , Delft University of Technology, The Netherlands	CO1 : "Case study: Experience in upgrading of sulfuric acid production plants", <u>Vladimir Igin</u> , JSC "NIUIF", Russia				
2:20pm - 2:40pm	CO2: "Online Monitoring of Fertilizer Granulation", <u>Robert Waggeling</u> , Microtrac GmbH, Germany	CO2: "Sustainable, balanced and large scale ammonia", <u>Yassir Ghivati</u> , Haldor Topsøe A/S, Denmark	CO2: "Recent Developments in FLSmidth Dewatering Technologies for Tailings Disposal to Maximise Water Recovery", <u>Lucy England</u> , FLSmidth Rugby, UK	CO2: "Reimagining Resources: enhancing nutrient stewardship through recovered phosphorous", <u>Molly Biedenfeld, Ahren Britton</u> , Ostara LLC, USA	CO2 : "ControTrace – Success Story at OCP Safi - Improved piping reliability on liquid Sulphur lines", <u>Stefaan Gouhie</u> , AMETEK, France				
2:40pm - 3:00pm	CO3: "New Scaling Methodology of New Intensified Granulation Process Based on Gas-Solid Spouted Beds", <u>M.H. Al-Dahhan</u> , Missouri University of Science and Technology, USA	CO3: "Large Scale Industrial Water Electrolysis-The building block for Sector Coupling & Green Chemicals", <u>Adamo Screnci</u> , Thyssenkrupp Industrial Solutions AG, Germany	CO3: "AKW Equipment + Process Design smart hydrosizer (AKA-SIZER) and smart attrition cells (AKA-TRIT)", <u>Thomas Baumann</u> , AKW Apparate + Verfahren GmbH, Germany	CO3: "Can Phosphorus service Mankind in a Sustainable Manner?", <u>Jan-Olof Drangert</u> , Linköping University, Sweden	CO3: ""Mega" Sulphuric Acid Plants", <u>Rene Dijkstra</u> , Chemetics Inc., Canada				
3:00pm - 3:30pm	Coffee break / EXHIBITION / Networking & Posters presentation								

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Monday, October 7th 2019

	FERTILIZERS/PROCESS	AGRICULTURE	PHOSPHATE BENEFICIATION	PHOSPHOGYPSUM	SULPHUR & SULFURIC ACID				
	IBN ROCHD Auditorium	AL KHAWARISMI Room	FATIMA AL FIIHRIA Room	IBN SINA Room	IBN TOFAIL Room				
3:30pm - 3:50pm	CO4: "Experience of Nitro-Phosphate Production with Phosphate Rock of different Origins", <u>Umar Farooq</u> , Fatima Fertilizer Company Limited, Pakistan	CO1: "Microfluidic Investigation of the Surface-Controlled Properties of Soil Constituents", <u>Thomas Close</u> , Massachusetts Institute of Technology, USA	CO4: "Roller screen technology developments", <u>Juergen Krellmann</u> , HAZEMAG & EPR, Germany	CO1: "Geosynthetic Applications for Phosphogypsum Stack System – During Initial Disposal, Operation and Closure", <u>Mohamad Al-hawaree</u> , Ardaman & Associates, Inc., A Tetra Tech Company, USA	CO4: "Tail Gas Treatment for Sulphuric Acid Plants – Chemetics Blacktail™", <u>Rene Dijkstra</u> , Chemetics Inc., Canada				
3:50pm - 4:10pm	CO5: "Moisture redistribution mechanisms in granular mineral fertilizers during their storage and transportation", <u>Valeriy Sokolov</u> , JSC "NIUIF", Russia	CO2: "Managing the Goldilocks Nutrient by capitalizing on fertilizer chemistry", <u>Andrew J. Margenot</u> , University of Illinois Urbana-Champaign, USA	CO5: "HYDRO-CLEAN® WASHING SYSTEM", <u>Jana Herring</u> , HAZEMAG & EPR GmbH, Germany	CO2: "Phosphogypsum Remediation: A New Economically Viable Process to Convert Phosphogypsum into Clean Saleable Gypsum and Valuable Contaminant Concentrate", <u>David Sevier</u> , Carbon Cycle Ltd., UK	CO5: "Case Study on Sulphuric Acid Plant Availability ", Jan Albrecht, <u>Cristian Roempler</u> , Jan Albrecht, Outotec GmbH & Co.KG, Germany & NORACID S.A., Chile				
4:10pm - 4:30pm	CO6: "Variables Affecting Caking on Granular Phosphorous Containing Fertilizers", <u>J. A. González-León</u> , Centre de Recherche Rhône-Alpes ARKEMA (CRR), France	CO3: "Nutrient Expert ®: A new decision support tool for fertilizer recommendation for wheat in Morocco", <u>Hakim Boulal</u> , African Plant Nutrition Institute (APNI) , Morocco	CO6: "Phosphate Beneficiation Development in Sustainable Development Way- OCP Khouribga Mine case", <u>M. Alouani</u> , <u>Hallouzi & EL Kiyaila</u> , OCP SA, Morocco	CO3: "Operations and Management of Phosphogypsum Stack Systems - Foreseeing the Unforeseen", <u>Ashraf H. Riad</u> , Ardaman & Associates, Inc., A Tetra Tech Company, USA	CO6: "A Numerical Study of Nozzles Used in the Injection of Molten Sulfur for Sulfuric Acid Production", <u>Rudolf Schick</u> , Spraying Systems Co., USA				
4:30pm - 4:50pm	CO7: "Advanced energy-saving technology of granular nitrate-containing NPK-fertilizers", <u>Denis Pagaleshkin</u> , JSC "NIUIF", Russia	CO4: "Global Phosphorus Use in Crop Production: The Past, Present, and Future", <u>Tan Zou</u> , University of Maryland Center for Environmental Science, USA	CO7: "Water recovery from phosphate beneficiation sludge: Formulation of reagent using mixture design ", <u>HAFID Zouhair</u> , Développement Mine, OCP SA, Morocco	CO4: "Phosphogypsum as an added value product : Pilot station for the various Phosphogypsum recovery processes at OCP Jorf Lasfar site", <u>DARRAS Rim</u> , OCP SA, Morocco	CO7: "How Catalyst Shape Affects Performance Of Any Sulphuric Acid Plant", <u>Dirk Hensel</u> , BASF SE, Germany				
			ADDITIVES	Phosphate based Materials					
4:50pm - 5:10pm	CO8: "Integrated Complexes for The Production of Ammonia, Urea, Nitric Acid and Solid Fertilizers", <u>Fabio Ferrari</u> , Casale SA, Switzerland	CO5: "Silicon fertilizers for sustainable African agriculture in dry and semi-dry regions", <u>Elena Bocharnikova</u> , Institute Basic Biological Problems Russian Academy of Sciences, Russia	WS1: "Additives for phosphates and fertilizers industry, new improvements", <u>Ivan Gilgado</u> , Kao Corporation S.A., Spain	CO1: "Phosphates by-products valorization for thermal energy storage", <u>Abdoul Razac Sane</u> , Université de Toulouse, Mines Albi, France					
5:10pm - 5:30pm	CO9: "INCREASING HEAT RECOVERY AND SAFETY in FERTILIZER OPERATIONS", <u>John Sinden</u> , Clark Solution, Brazil	CO6: "The benefits of biostimulants in increasing fertilizer efficiency - The use of bio-stimulants on fertilizer use efficiency and crop yield", <u>Raewyn McGehan</u> , Presented by: <u>Teferi Belayneh</u> , Omnia Specialities Australia	WS2: "How to optimize phosphate slurries rheology?", <u>Jacky Mongoin</u> , COATEX, France	CO2: "Calcium phosphates for odour treatment", <u>Nathalie Lyczko</u> , Université de Toulouse, IMT Mines Albi, Centre RAPSODEE, France					

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VISITS

Tuesday, October 8th 2019

9:30am - 10:15am	Plenary 3: Fighting Hidden Hunger with Plant Mineral Nutrition, Ismail Cakmak , Professor, Sabanci University, Faculty of Engineering and Natural Sciences, Istanbul, Turkey. <i>IBN ROCHD Auditorium</i>									
10:15am - 10:45am	Coffee break / EXHIBITION / Networking & Posters presentation									
	FERTILIZERS/PROCESS	BENEFICIATION / FLOTATION	HIGH VALUE ELEMENTS	MATERIALS & CORROSION	ANALYSIS & QUALITY CONTROL					
	<i>IBN ROCHD Auditorium</i>	<i>AL KHAWARISMI Room</i>	<i>FATIMA AL FIIHRIA Room</i>	<i>IBN SINA Room</i>	<i>IBN TOFAIL Room</i>					
10:45am - 11:05am	CO10: "An Innovative Approach to Granulation Design", Edward DeRose , Hatch, USA	CO1: "Prospects of developments of smart collectors for phosphorite flotation: nanoparticles based molecular machines", S. ALTHYABAT , Al-Hussein Bin Talal University, Jordan	WS1: "Improvements for AIF3 technology from FSA", Evgeniy Torochkov , JSC "NIUIF", Russia	WS1: "Corrosion Resistant Alloys for Phosphoric Acid Production and Storage", Sandra Le Manchet , Industeel, France	CO1: "GEOSCAN-M Use For Process Improvement in Phosphate Plants", Luke Balzan , Scantech International, Australia					
11:05am - 11:25am	CO11: "Modern screening technologies for maximizing quality & efficiency improvements", Tountzer Ramadan , RHEWUM GmbH, Germany	CO2: "Processing Low grade Phosphate Rock with Reverse Double Flotation", Rachida Daoudi , Worley, USA	WS2: "Extraction of Rare Earth Elements Using Specific Supported Ligands", R. Bardovskyi , Mohammed VI Polytechnic University, Morocco. Université Côte d'Azur, France	WS2: "Technological Innovation on Conveyor Idlers", T.G. Krishnan , Global Conveyor Systems Pvt. Ltd., India	CO2: "How to collect a representative sample? A brief introduction to the sampling world...", Philippe Davin , Iteca Socadei, France					
11:25am - 11:55pm	CO12: "Novel coating technologies to reduce rate of moisture adsorption of phosphate and phosphate/urea substrates", Lucas R. Moore , ArrMaz, USA	CO3: "Sylvite flotation with the collector of octadecylamine in the presence of SO ₄ ²⁻ and Mg ²⁺ ", Shaoxian Song , Wuhan University of Technology, China	WS3: "Extraction of iodine from phosphoric acid media", K. Khaless , Mohammed VI Polytechnic University, Morocco.		CO3: "The Fertilizer Industry Challenging the Regulation Evolution and Quality Diversity.", Zineb JABRI , OCP SA, Morocco					
12:00pm - 1:30pm	Lunch									
1:30pm - 2:15pm	Plenary 4: Heavy Metals in "P" Fertilizers Marketed in Brazil: Is This a Concern in Our Agroecosystems?, Luiz Roberto Guimaraes Guilherme , Professor, Federal University of Lavras, Brazil. <i>IBN ROCHD Auditorium</i>									

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Tuesday, October 8th 2019

	PHOSPHORIC ACID / NEW PROCESS	BENEFICIATION / FLOTATION	MINOR ELEMENTS EXTRACTION	INDUSTRIAL MAINTENANCE	DIGITALIZATION / ARTIFICIAL INTELLIGENCE				
	IBN ROCHD Auditorium	AL KHAWARISMI Room	FATIMA AL FIIHRIA Room	IBN SINA Room	IBN TOFAIL Room				
2:15pm - 2:35pm	CO1: "The Study of Agents Application of Wet Process Phosphoric Acid Production: Based on Chinese Industrial Cases", <u>Yang guang-hong</u> , Wuhan Qiangsheng Technology Co., Ltd., China	CO4: "Allflot® new challenges for phosphate flotation", <u>Lutz Markworth</u> , Allmineral Aufbereitungstechnik GmbH & Co. KG, Germany	CO1: "Meeting Tomorrows Emission Standards for CO2/SOX/NOX and Heavy Metals while Maintaining Competitiveness", <u>Alain STRICKROTH</u> and Nicolás HIDALGO, CPPE S.A., Luxembourg-Dommeldange	CO1: "New technologies and practices for The Maintenance of the Future", <u>Lionel Meleton</u> , Cetim, France	CO1: "Phosphate process intensification via metallurgical sampling, online analysis and integrated smart equipment", <u>Seth Spiller</u> , The Orion Group, Morocco , USA.				
2:35pm - 2:55pm	CO2: "WAPHCO Project: How to Produce High-Quality Merchant Grade Acid from El Wady Phosphate Rock charged with Impurities?" <u>Thomas E.Barooddy</u> , <u>Hadrien Leruth</u> , K-Technologies Inc., USA & Prayon Technologies S.A.,BELGIUM	CO5: "Improved flotation recovery and selectivity of an ultra-fine Brazilian phosphate ore using Eriez' column flotation technology", <u>Erich Dohm</u> , Eriez Flotation Division, USA	CO2 : "MOF/polymer composites for the extraction of metal ions from highly complex aqueous mixtures", <u>Wendy L. Queen</u> , Swiss Federal Institute of Technology (EPFL) Valais Wallis, Switzerland	CO2: "Reliability Based Asset Management Solution Reduce maintenance costs and increase operational efficiency", <u>Praveen KC</u> , ABB India Ltd, India	CO2: "Multi-objective optimized operation assistance systems for highly integrated production sites", <u>Christopher Seibel</u> , Thyssenkrupp Industrial Solutions AG, Germany				
2:55pm - 3:15pm	CO3: "Innovations of Di-Hydrate Phosphoric Acid Plant Designs for the 2020's", <u>James Byrd</u> , Worley, USA	CO6: "Valuation of Estonian Phosphate Rock by Flotation", <u>Kadriann Tamm</u> , Tallinn University of Technology, Estonia	CO3 : "Cd removal from phosphate rock by fatty acid ethyl ester", <u>Vladimir Matichenkov</u> , Institute Basic Biological Problems Russian Academy of Sciences, Russia	CO3: "Predict the unpredictable with OCP Maintenance Solutions", <u>JBILL Abdenour</u> , <u>Mounir LAHLIMI</u> , OCP SA, Morocco	CO3: "A data-driven revolution, process optimization to the next level", <u>Ryan Koorts</u> , ABB Switzerland, Switzerland				
3:15 - 3:35pm	CO4: "DA-HF Process, new process for Improved Phosphoric Acid Production: First Industrial Plant", <u>Hadrien Leruth</u> , Prayon Technologies, Belgium	CO7: "Study of flotation enhancement by nanobubbles and its application in phosphate", <u>Dongping Tao</u> , University of Science and Technology Liaoning (USTL), China	CO4 : "Application of ACCO-PHOS® Technology for the Removal of Cadmium and Arsenic from Phosphoric Acid", <u>John Carr</u> , Solvay, USA	CO4: "ALLENS: an IoT platform for predictive maintenance", <u>Khadim Sara</u> , OCP SA, Morocco	CO4: "Robotic and tele-operated mining equipment as part of the Intelligent Mine technology", <u>Mikhail Makeev</u> , VIST Group, Russia				
3:35pm - 3:55pm	CO5: "Production of phosphoric acid and phosphate products from low grade phosphate rock: the EcoPhos ChemBe process", <u>Takhim Mohamed</u> , Ecophos, Belgium	CO8: "Preparation of high-purity oleic acid and its tailings produce flotation collectors, a comprehensive utilization solution", <u>Huang Qi-mao</u> , Wuhan Qiangsheng Technology Co., Ltd., China	CO5: "Assessing the Removal of Heavy Metals using Emerging and Intensifying Technology of Emulsion Liquid Membrane With Ionic Liquid", <u>Qusay Al-Obaidi</u> , presented by <u>Muthanna Al-Dahhana</u> , Missouri University of Science and Technology, USA,	CO5: "The Digitalization: Process Committed in the Maintenance and Machine Reliability", <u>Franck Fugon</u> , Prüftechnik, France	CO5: "How to be SMART with IIOT in the phosphate process industry" Simo Rounela, <u>Simon Sims</u> , FLOWROX OY, FINLAND				
4:15pm - 4:45pm	Coffee break / EXHIBITION / Networking & Posters presentation								
9pm	GALA DINNER								

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Wednesday, October 9th 2019									
9:30am - 10:15am	Plenary 5: New Insights on Phosphate-based Materials for Energy, Ange Nzihou , Professor, Director of centre RAPSODEE, Ecole des Mines Albi, Université de Toulouse, France. <i>IBN ROCHD Auditorium</i>								
10:15am - 11:00am	Coffee break / EXHIBITION / Networking & Posters presentation								
	PHOSPHORIC ACID / NEW PROCESS	SMART FERTILIZERS	ENVIRONMENT	MINING INDUSTRY	DIGITALIZATION / ARTIFICIAL INTELLIGENCE				
	IBN ROCHD Auditorium	AL KHAWARISMI Room	FATIMA AL FIHRIA Room	IBN SINA Room	IBN TOFAIL Room				
11:00am - 11:20am	CO6: "A New Modeling Approach of Mixing Quality and Axial Hold-up. Distribution in Agitated Liquid-Liquid Flow Mixers for Enabling Process Intensification ", K.H.Abid , The University of of Bradford, UK	CO1: "Flexible technology of granular slow- and controlled release PK-, NPK-, NPKS-fertilizers", Andrey Norov , JSC "NIUIF",Russia	CO1: "Efficient Operation of Wet Scrubbing Systems in Pollution Containment", G M Patel , C I F C (I) Pvt Ltd, (Rahimtula gGroup of Companies), India	WS1: "Managing research projects, an integrated approach", Abderrazak HAMZAOU , ONHYM, Morocco WS2: "The Experimental Mine of Benguerir: a living lab for innovation for sustainable development of the mining industry in Africa", Abdelaali Kossir , University Mohammed VI Poletchnic, Morocco	CO6: "Digitalization in the acid plant of the future", Collin Bartlett , Outotec (Canada) Ltd., Canada				
11:20am - 11:40pm	CO7: "Droplet Separator Numerical Modelling for Performance Improvement in Phosphoric Acid Production", Thomas Dethier , Prayon Technologies, BELGIUM	CO2: "Development and Evaluation of a Controlled Phosphorus Release Fertilizer System for Enhanced Phosphorus Use Efficiency", Khalid Al Rohily , Saudi Basic Industries Corporation, Saudi Arabia.	CO2 : "Improvements in Fertilizer and Sulphuric Acid Plants Emission Control", Philippe GOOSSENS & Sébastien CHAPELLE , Waterleau, Paris, France.	WS3: "Development of a "Video" and "Artificial intelligence" linkage tool for plant surveillance", Hicham Aggadi , OCP, Morocco WS4: "Issues of R & D and Innovation for Managem", Intissar Benzakour ,Reminex-Managem , Morocco.	CO7: "Digitalization and Optimization in Phosphate Mine", Herat Shah, Abdlehamid Jouini , Yokogawa Middle East and Africa, Dubai, UAE				
11:40pm - 12:00pm	CO8: "A Specific approach to Production Stabilization /Optimization of Phosphoric Acid Plant using Low Grade Rock Phosphate", TNV Satyanarayana , Technip India Limited, India	CO3: "Optimization of Plant and Microbial Belowground Functionalities Contributes to a Higher Phosphorus use efficiency ", Adnane BARGAZ , Mohammed VI Polytechnic University, Benguerir, Morocco.	CO3: "Managing Carbon Dioxide by a New Approach in Optimizing -Culturing of Microalgae/Cyanobacteria for Wastewater and Flue Gas Treatment, Sustainable Environment, Bioenergy and Valued Products", M.H. Al-Dahhan , Missouri University of Science and Technology, USA	WS5: "Presentation of the development project of the Tighza mine", Lahcen Ouchtouban , CMT, Morocco WS6: "The use of rock phosphate to increase soil fertility and crop productivity in Africa: OCP Africa experience, case of Ivory Coast", Jean Baptiste ETTIEN , Abidjan, Ivory Coast	CO8: "Optimization of industrial processes by developing a digital platform to automate the consolidation and learning of Phosphate Manufacturing Plant Industrial data", Marc Senterre , Prayon, Belgium				
12:00pm - 12:20pm	CO9: "Rheology – Fundamental and experimental aspects", Abderrahim Maazouz , INSA de Lyon – France	CO4: "Novel Biomass Upgrading Plant as a Renewable Source of Added-Value Chemicals", Chakib Bouallou , MINES ParisTech, PSL Research University, France		WS7: "Problems of phosphate mining in Nigeria", SMDF , Nigeria DISCUSSION	CO9: "SAMGUARD – Merging Artificial Intelligence and Human Intelligence to boost plant Overall Equipment Effectiveness", Laurent Martinod, presented by Patrick Lopez , SAMSON REGULATION SAS, France				
12:30pm - 12:45pm	CLOSING CEREMONY <i>IBN ROCHD Auditorium</i>								
1:00pm - 2:30pm	Lunch								

POSTERS

PRESENTATIONS

EXHIBITION VISITS

