



PPS Newsletter

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May 2021

Information to Polymer Processing Society Members

The PPS-36 International Conference, September 26-30, 2021, in Montreal, Canada

The PPS-36 International Conference of PPS will take place in Montreal, Canada, on September 26-30 2021 (website <http://www.pps36.ca/>). The Conference is organized by Prof. Abdellah Aji of Ecole Polytechnique de Montreal and his team. The Conference was postponed for over a year due to the severe virus pandemic COVID-19.

The following message is to be found on the website by the organizers.

Dear Colleagues and Friends,

We hope you all are well and safe in these pandemic times.

PPS-36 International Conference will take place as planned from September 26, 2021 to September 30, 2021, in Montreal Bonaventure Hotel in Downtown Montreal. The conference **will be both in-person and online (hybrid) participation** and abstracts can be submitted up to June 30, 2021. Virtual participants will have to pre-record and download their presentations. The registration fees can be found in the conference website and there will be no late registration penalties such that you can register up to one month prior to the conference dates. The information about hotel reservations and conditions will be also posted in the conference website.

Participants with already proposed and accepted abstracts may elect to keep their submission for the conference or update them. New submission can be uploaded as well.

All the abstracts submitted in 2020 for the conference are still in our database. If you elect to withdraw your abstract, please send us an e-mail (to pps36@polymtl.ca) stating so and we can eliminate it. You can modify your submitted abstract or submit a new one by accessing your account in the conference abstract submission website (<http://www.ppsconferences.org/r2/login.asp>).

We still hope that with the progress of vaccination in many countries, many of you can participate in person, it is much more valuable and will allow all of us to reconnect for real !

We sincerely hope to see you all at the PPS-36 in Montreal, during the majestic fall mosaic of colors at that time.

Take care and keep safe!

The PPS-36 Organizing Committee



The PPS-37 International Conference, April 11-15, 2022, to be held in Fukuoka, Japan

The PPS-37 International Conference will take place in Fukuoka, Japan, on April 11-15, 2022 (website <https://www.pps-37.org/>). The Conference is organized by Prof. Toshihisa Kajawara and his team of Kyushu University in Fukuoka. PPS-37 International Conference will be prepared as an on-site, virtual, or hybrid conference. There are 17 general symposia and 8 special ones.

Registration fees: Early (member: \$730 or 80,000 yen), (non-member: \$820 or 90,000 yen), (student: \$230 or 25,000 yen), On-site (member: \$820 or 90,000 yen), (non-member: \$910 or 100,000 yen), (student: \$270 or 30,000 yen).

The call for abstracts will be launched just after the Montreal Conference (October 2021).

The Conference will take place at Fukuoka International Congress Center located on Hakata of Fukuoka city. Fukuoka is the capital city of Fukuoka Prefecture, situated on the northern shore of the Japanese island of Kyushu. It is the most populous city on the island.



Fukuoka is the capital city of Kyushu island in Japan. The PPS-37 International Conference will take place there.

Fukuoka is a port city and it is known as being Japan's liveliest regional center.

A view of Fukuoka's downtown area.

Joint IKV/PPS Symposium on Plastics Technology, March 14-15, 2022, to be held in Aachen, Germany

There is going to be a joint IKV/PPS symposium on Plastics Technology to be held March 14-15, 2022 in Aachen, Germany.

This is the 2nd symposium on polymer technology organized by Prof. Christian Hopmann and his team at IKV. The 1st was held on-line on September 8-12, 2020, had 110 participants, 36 conference talks, from 11 nations.

The 2nd symposium will have 45 talks for 1.5 days (+ 21 talks if for 2 days).

The fees are for PPS members €110 (include a \$110 fee for membership to PPS) and for students are €245 (include a \$25 fee for membership to PPS).

A call for abstracts will be issued soon and the tentative deadline will be 2021-8-31.

Several PPS International Representatives will participate in the Scientific Committee.

The Proceedings of the Symposium will be published.



The Eurogress Convention Center in Aachen, Germany, where the joint IKV/PPS symposium will take place in March 14-15, 2022.



The area in Aachen, Germany where the symposium will take place.



Centre Charlemagne - 15 min walk from conference hotel.

Webinars

A Webinar on **Additive Manufacturing** took place on January 15, 2021. It was very successful on the GoToWebinar Platform and with the positive involvement of Tim Osswald's team from the University of Wisconsin-Madison, USA. Six half-hour presentations were made by Manfred Schmid, Clemens Holzer, Tim Osswald, Jean-François Agassant, Miko Cakmak and Kae-Won Choi. Sadhan Jana was the moderator. There were over 80 people attending from many countries around the world. All people registered have access to the webinar recordings.

A joint UK-China webinar will be held in June 9, 2021, entitled "**Advanced Materials for Health Care**" (Coates, UK).

A webinar is planned on **Plastics Sustainability** for July 2021 to be organized by Sinha Ray of South Africa.

A webinar was proposed to be held in Asia entitled "**Nano- and Bionanopolymers: Processing, Characteristics, and Applications**" in July or October 2021 (Organizers: Liu, Taiwan, and Ito, Japan).

A webinar was proposed to be held in January 2022 (Organizer: Holzer, Leoben, Austria).

PPS members will receive program and registration information in due course.

Lambla Award winner for 2021 is Ernesto Di Maio of the University of Napoli, Naples, Italy

The Lambla Award will be given at PPS-36 in Montreal, Canada, to Prof. Ernesto Di Maio.

Dr. Ernesto Di Maio received his M.S. and Ph.D. in Materials Engineering from the University of Naples Federico II (Italy), where he is Associate Professor in the Department of Chemical, Materials and Manufacturing Engineering. His research focuses on the processing and modeling of thermoplastic and thermosetting foams and on the physical properties of polymer/gas solutions relevant to foaming. He is the Director of the FoamLab, the Foaming Laboratory of the University of Naples, where new characterization and processing tools are developed to gain new understanding and to design new foamed materials and products.



Dr. Di Maio has published 100 papers on ISI Journals, 1 Book, 14 Book Chapters, has filed 14 patents, contributed with 20 invited or keynote lectures and with 200 papers at international conferences. His papers have been cited 3400 times with an H-index of 33.

He is Associate Editor of the Journal of Cellular Plastics, SAGE Publishing Inc., Member of the Editorial Board of Cellular Polymers, SAGE Publishing Inc. and Member of the Editorial Board of the Journal of Supercritical Fluids, Elsevier B.V.

He founded two spin-off companies on a patented material for eco-building in 2009 and on a patented technology for achieving multi-graded polymeric foams in 2018.

JLWhite Innovation Award for 2021 Goes to Prof. Anil K. Bhowmick, University of Houston, Houston, USA

The James L White Award will be given at PPS-36 in Montreal, Canada, to Anil K. Bhowmick.



Prof. Anil K. Bhowmick is recognized for his impressive innovation, and development and commercialization of rubber products. Professor Bhowmick developed compositions and processing techniques for *energy optimized* conveyor belt compound, for Phoenix-Yule, an Indo-German company (now Phoenix Conveyer Belt (I) Pvt. Ltd.) for the first time in the world. This belt consumes much lower energy than the conventional belt during operation and the patented technology is being sold in the international market. The track pads and the rubberised road wheels for Military Battle Tanks were developed by Prof. Bhowmick and his team. The compounds and their processing were first developed in the laboratory, and the products were then manufactured by Sundaram Industries, Madurai, India, as per his guidelines, and tested in Defence trial track as well as on rugged terrain in the war zones. The

developed pads gave life more than three times expected from such rubber pads. These are being used by the Indian Defence even today. As Dr. APJ Abdul Kalam, former President of India, wrote, this was a “valuable contribution and commendable work”.

Professor Bhowmick applied electron beam technology to rubber as an alternative and green crosslinking system in rubber in the early days. Department of Atomic Energy, Government of India and a local company (NICCO Cable) used the developments and his technology to manufacture EPDM and chlorinated polyethylene based cables in collaboration with him. These were the first electron beam cured products from India. The developed rubbers have high temperature withstanding capability, ruggedness, better crush resistance, and better scrap abrasion resistance. All these rubbers met the cable specification of mechanical properties, air aging, volume resistivity, breakdown voltage and oil resistance in diesel & mineral spirit and

limiting oxygen index. These were manufactured commercially and sold in the domestic and international market by NICCO.

Professor Bhowmick and his team developed indigenously rubber rolls (Wringer/squeeze Roll, Pinch Roll, Looper Roll, Bridle Roll, etc.) for Cold Rolling Mills (CRM) of TATA STEEL, one of the largest steel companies in the world. This innovative technology has resulted 100-600% improvement in service life in different lines of CRM. The performance of the rubber rolls remains unmatched in comparison to the rolls being supplied by national and international suppliers even today, according to the Vice-President, Tata Steel. It has reduced the mill down time due to rubber roll problems by 30-60%, which increased the productivity of the mill. There are nine patents, which speaks volume about the innovativeness of the technology and the company achieved performance improvement more than their target and financial benefits from the successful technology transfer.

Professor Bhowmick's innovative work resulted in a series of novel polymer based nanocomposites. The applications have been made in tyre (JK Tyre, India) where the developed nanocomposite gives better wet traction, wear resistance and rolling resistance, and in non-tyre sector (DENKA, Japan), where the designed nanocomposites impart higher mechanical properties and heat resistance and are covered by several patents in Japan, USA, and other countries.

Thermoplastics elastomers are a class of materials which can be processed at high temperatures like plastics, but show rubbery behaviour like elastomers at room temperature. A series of these materials, both blocks and blends, have been developed/modified in Prof. Bhowmick's laboratory. His patent with SABIC/GE is interesting. One of the pioneering researches in this field is the development of high temperature thermoplastic elastomers, and understanding the morphology of these materials at the nano- and molecular levels. A novel invention in this field was to develop thermoplastic elastomers from waste rubber and waste plastics, which are very important today in the age of sustainability.

The impregnable urge for sustainable development has clinched the attention of polymer science & technology in recent years. Prof. Bhowmick's work in this respect has gone into three dimensions: (a) Development of new polymers by replacing the fossil derived ones; (b) Reuse of waste rubbers & plastics; (c) Development of energy efficient technology in rubber processing. In addition, he developed many new polymers and their technology, which are successful. Some of these contributions like silane grafting of polyethylene and EPDM for cable manufacturing in Fort Gloster, India, hydrogenation of nitrile rubber, fluoroacrylate modified acrylic rubber for DENKA, Japan, modified styrene butadiene rubber, etc., are commercial materials today.

Professor Bhowmick also developed tube expander and cable joint using modified polyethylene, seals and diaphragm for chemical drum closer, flue duct expansion joints, belt and pinch roller for tape deck systems, rubber grooved pad, TPE based window seal compound, epoxy modified natural rubber for adhesive application, polymyrcene and its copolymers, new compositions using polymeric waste, etc.

Professor Bhowmick is currently a Research Professor at the Department of Chemical Engineering, the University of Houston, former Professor of Eminence and Head of Rubber Technology Centre and Dean of Postgraduate Studies and Dean (Sponsored Research & Industrial Consultancy), IIT Kharagpur. Prof. Bhowmick was the Director of the Indian Institute of Technology, Patna. He was previously associated with the University of Akron, Ohio, USA, London School of Polymer Technology, London and Tokyo Institute of Technology, Japan.

His main research interests are: Polymer Nanocomposites, Thermoplastic Elastomers and Polymer blends, Polymer modification, Rubber Technology, Failure and Degradation of Polymers, and Adhesion and Adhesives. He has more than six hundred publications in these fields in the peer reviewed international journals, 35 book chapters, seven co-edited books and two co-authored books. He was also co-editor of the special issue of Polymer and Composite Characterization of the Journal of Macromolecular Science (USA). He was the 2002 winner of

the "Chemistry of Thermoplastic Elastomers" award and 1997 winner of the "George Stafford Whitby" award of the Rubber Division, American Chemical Society for distinguished teaching & innovative research, and 2001 K.M. Philip award of the All India Rubber Industries Association for outstanding contribution to the growth and development of rubber industries in India.

He has been awarded the Fred E. Schwab Education Award of the Society of Plastics Engineers (SPE), USA in 2019. He received NOCIL award 1991, JSPS award 1990, Commonwealth award 1990, MRF award 1989, Stanton-Redcroft ITAS award 1989, Distinguished Visitor Award, University of Auckland, NZ, 2019, Distinguished Alumnus Award, IIT Kharagpur, 2019, and Syed Husain Zaheer Medal, 2020, for outstanding research in Engineering and Technology by the Indian National Science Academy.

He is on the Editorial Board of Rubber Chemistry and Technology (USA), Journal of Applied Polymer Science (USA), Journal of Materials Science (USA), Polymers and Polymer Composites (UK), Polymers for Advanced Technology (Germany), Processes (Germany), Journal of Rubber Research (Malaysia) and Natural Rubber Research (India). He is a Fellow of Indian National Academy of Engineering, New Delhi, Indian National Science Academy, New Delhi, and West Bengal Science and Technology Academy.

He is married and lives with his wife Kumkum in Houston. Their only son, Dr. Asmit Bhowmick, works in LBNL, Berkeley. He loves music and sports.

He is grateful today to a large number of Government and private funding agencies for providing grants for his research, large number of students, and coworkers, his mentors, collaborators, well-wishers and Polymer Processing Society for this recognition.

Early Career Award for 2021 goes to Prof. Mohammad Arjmand of the University of British Columbia, Kelowna, Canada

The Early Career Award will be given at PPS-36 in Montreal, Canada, to Prof. Mohammad Arjmand.



Dr. Mohammad Arjmand obtained his PhD from the University of Calgary, Canada, in Chemical (Polymer) Engineering in 2014. After his PhD, he carried out Postdoctoral works at the University of Calgary (2014-2017) and the University of Toronto (2017-2018). He was also a Guest Researcher at the Leibniz Institute for Polymer Research (IPF) in Dresden, Germany (July-August 2015). Since July 2018, he has started a tenure-track Assistant Professor position at the University of British Columbia's Okanagan campus, Canada. Since April 2019, he has been entitled as the Canada Research Chair in "Advanced Materials and Polymer Engineering", which is the only one in the School of Engineering at UBC Okanagan. Of note, the Canada Research Chairs Program invests \$298 million per

year to attract and retain some of the world's most accomplished and promising minds in engineering and the natural sciences, health sciences, humanities, and social sciences.

Although early in his career, the outcomes of Dr. Arjmand's research studies have been translated into 1 Book, 1 Book Chapter, 115 Journal Papers, including 3 Journal Featured Cover Photos, 2 Filed Patents, 77 Conference Proceedings/Abstracts/Presentations, and 18 Reports for

Canadian government and industry. The quality of his papers is reflected in his google scholar citations of 3167 and H-index of 28 (May 2021). The Nanomaterials and Polymer Nanocomposites Laboratory (NPNL), directed by Dr. Arjmand, is currently hosting 21 HQP, including 5 PDF, 9 PhD, 5 MASc, and 2 Undergraduate RA. NPNL also has 7 Alumni, including 3 Visiting PhD, 1 MEng, and 3 Undergraduate RA. Dr. Arjmand has been notably successful in securing funding (over \$5 million) during his stay at UBC, allowing him to establish a well-equipped lab featuring state-of-the-art nanomaterials synthesis, polymer processing, and materials characterization facilities. Dr. Arjmand has been honored with numerous institutional (14), provincial (1), national (2), and international (6) awards, recognitions, and nominations during his academic career, where the most significant ones are: Faculty Research Excellence Award in the School of Engineering at UBC Okanagan (2021), Canada Research Chair in Advanced Materials and Polymer Engineering (2019), PPS Young Researcher Travel Award (2016), Third Place of Best Student Poster Award in PPS America Conference (2012), Alberta Innovates – Technology Futures (AITF) Doctoral Scholarship (2012), and PPS Organizing Committee Graduate Travel Award (2011 and 2012).

Dr. Arjmand's main research focus is on the synthesis and engineering of multifunctional nanomaterials (carbon nanotube, graphene, graphene quantum dots, metal-organic framework, and MXene) and development of their polymer nanocomposites with enhanced physical properties, i.e., electrical, dielectric, electromagnetic shielding, sensing and actuating, mechanical, thermal, and tribological. Dr. Arjmand's research is also intensely engaged with additive manufacturing (3D printing) to generate multilayered multifunctional polymer nanocomposites with complex geometries. Further information regarding Dr. Arjmand's research initiative can be found in <https://npnl.ok.ubc.ca/>.

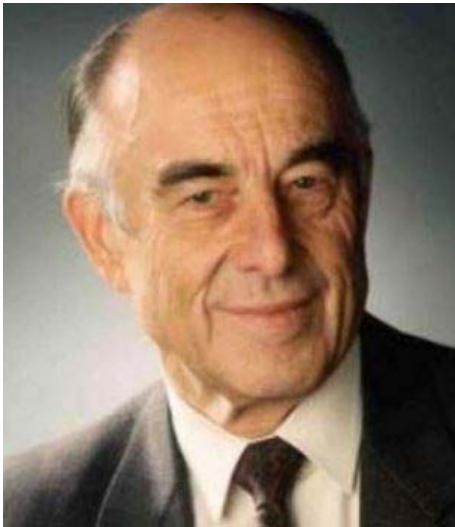
Robert Byron Bird (February 5, 1924 - November 13, 2020)



Professor Robert ("Bob") Bird was born in Bryan, Texas. He attended the University of Maryland 1941-1943, but he had to discontinue his studies during World War II, in which he served in the US Army. He saw action from the eastern Belgium to the Austrian border. Bird received his B.S. degree in chemical engineering from the University of Illinois at Urbana-Champaign in 1947 and his Ph.D. degree in physical chemistry from the University of Wisconsin in 1950. After one year as postdoctoral fellow at Universiteit van Amsterdam, he returned to the University of Wisconsin, where he taught and did research in transport phenomena of non-Newtonian fluids (including polymers), polymer kinetic theory, rheology, and co-authored several books and numerous papers. He, along with W.E. Stewart and E.N. Lightfoot, was an author of the classic textbook *Transport Phenomena*, which has had a profound impact on chemical engineering education. He

received numerous awards and distinctions including the National Medal of Science of the USA in 1987, the Bingham Medal of the Society of Rheology in 1974, and the Eringen Medal of the Society for Engineering Science in 1984. He was granted the Dutch title Knight of the Order of Orange-Nassau in 2004 for his "exceptional contributions to the promotion of Dutch language and culture in the United States and at the University of Wisconsin". Bob Bird is also a co-author of *Basic Technical Japanese* with E.E. Daub and N. Inoue.

Georg Menges (December 19, 1923 - February 28, 2021)



Professor Georg Menges was born in Gernsbach/Baden (Germany), which is located in the Black Forest near the border with France. He served in the military during World War II and he was prisoner of war in the Soviet Union, for several years. In 1949 he started his studies in Mechanical Engineering at the TH Stuttgart and received his doctorate in 1955, with specialization in metallurgy. After working in the developing plastics industry, he was appointed Professor of Polymer Processing and Director of IKV (Institut für Kunststoffverarbeitung) at the RWTH Aachen, in 1965, till his retirement, as Professor Emeritus, in 1989. He established IKV as a world leading research and education center in polymer technology and engineering. Over 1,000 Dipl.-Ing. Degrees and over 200 Doctorates were granted during his tenure. He was successful in attracting numerous corporations from

around the world, as sponsors of the IKV, and formed a strong network for research and innovation in plastics technology. After his retirement he was very active in plastics recycling. He is the author/co-author of numerous publications and patents, in diverse areas including injection molding, extrusion, foams, blow molding, thermoforming, and welding. He received several awards including the Verdienstkreuz, 1.Klasse (Cross of Merit, First Class) from the Federal Republic of Germany, induction to the Plastics Hall of Fame USA and Doctor honoris causa from the Montanuniversität Leoben, Austria.

Next Newsletter – November 2021

If you have comments on how to improve this newsletter or want to share some information in the next one, please contact the Newsletter Editor Prof. Evan Mitsoulis at mitsouli@metal.ntua.gr. The next issue of the Newsletter is due in November 2021.