ATIPIC and BPG invite you to a workshop on the interface of their respective activities with the theme:

Where Polymers meet Coatings

Date: Tuesday October 8th 2024
Time: 13:30 hrs. – 17:00 hrs.
Venue: Berkenhof
Ruisbroekstraat 24, 3360 Bierbeek
Tel: 016 46 16 28
www.berkenhof.be

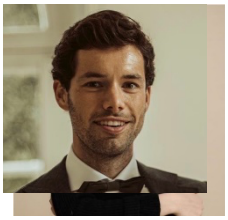
Time	PROGRAM / Titles	Speakers / Company
13:30 hrs.	**Welcome / Registration (coffee/tea)**	
14 :00 hrs.	**Opening Session 1 by Dr Jacques Warnon president ATIPIC**	
14:05 hrs.	**Fluoropolymer Coatings: high-performance in extreme environments**	***Alexander Van den Eynde (Chemours)***
14:40 hrs.	**On the use of liquids, gases, and plasma to characterize and treat surfaces**	***Dr. Navid Mostofi Sarkari (KULeuven)***
15:15hrs.	**Coffee Break & time for networking**	
15:30 hrs.	**Opening session 2 by Prof Dr Louis Pitet president BPG**	
15:35 hrs.	**Supramolecular networks and vitrimers: Influence of the precursor topology, functionality and crosslinking density on their flow properties**	***Prof. Dr. Evelyn Van Ruymbeke (UC Louvain)***
16:10 hrs.	**Self-healing polymers for coatings, encapsulants and additive manufacturing.**	***Prof. Dr. Joost* Brancart *(VUB)***
16:45 hrs.	**Closure and networking drinks**	

Sponsors ATIPIC

ATIPIC/BPG
Technical Academic Workshop 2024
Theme: *Where Polymers meet Coatings*

Abstracts

14:05 hrs. **Fluoropolymer Coatings: high-performance in extreme environments** — ***Alexander Van den Eynde (Chemours)***



Fluoropolymers are well known for their non-stick properties and low coefficient of friction, as well as their outstanding chemical resistance, even at high temperatures, and unique electrical properties. Coatings made with fluoropolymers also possess these properties and Chemours has developed a wide range of fluoropolymer coatings, both in liquid and powder forms, allowing to coat a wide variety of parts for an unlimited number of applications. From the aerospace and automotive industry to medical and bakeware applications, a wide range of industries and substrates benefit from the versatility and unique properties of Teflon™ coatings. This presentation will dive deeper into the types of fluoropolymers used, their distinct properties in coatings, typical applications, and regulatory landscape.

14:40 hrs. **On the use of liquids, gases, and plasma to characterize and treat surfaces** — ***Navid Mostofi Sarkari (KULeuven)***

Abstract: The COMPLEXURF group (Department of Materials Engineering, KU Leuven) is dedicated to the study of complex surfaces and interfaces and supported by a group of scientists and engineers offering complementary key expertise that contributes to acquire novel and holistic views to unravel highly complex physico-chemical interfacial phenomena. Surfaces and interfaces are indeed prone to unpredictable physical and chemical modifications due to interactions with uncontrolled atmospheres, surface re-organization, and contamination. A good control of surface properties (flat monoliths, fibers, particles) can therefore only be obtained if surfaces are prepared, treated, and analyzed with great attention. COMPLEXURF then aims at linking fundamental studies and more applied research for which scale effects, repeatability, speed of measurements and versatility without compromising accuracy, play an important role. This approach will be illustrated by case studies focusing on plasma-polymerized aluminum surfaces, basalt fibers, and silica aerogel particles.

15:35 hrs. **Supramolecular networks and vitrimers: Influence of the precursor topology, functionality and crosslinking density on their flow properties** — ***Prof. Dr. Evelyn Van Ruymbeke (UC Louvain)***

These last years, supramolecular networks and vitrimers have demonstrated their interesting properties and recyclability, making them an attractive alternative to traditional polymers, as well as a promising solution to decrease the environmental impact of polymer materials. With the increasing focus on the development of new transient polymer networks, it is now crucial to better understand the relationship between their composition and their viscoelastic properties, to allow their rational design as well as for their large-scale processing and manufacturing. Indeed, today the impact of the molecular weight, architecture and functionality of the polymer precursor, of the crosslinker density, and of the temperature on the viscoelastic properties remains unclear. Therefore, the objective of this work is to study the viscoelastic properties of well-defined model supramolecular networks and vitrimers in order to elucidate the effects of these composition parameters on the material&#39 rheological behavior. In particular, we would like to understand how their flow properties can be tuned, by playing with the building blocks architecture. We then analyze the

data with the Time-Temperature-Superposition principle to investigate the influence of temperature on these samples and extract the activation energy of the exchange bond reactions, in function of their composition.

16:10 hrs. **Self-healing polymers for coatings, encapsulants and additive manufacturing.** ***Prof. Dr. Joost* Brancart *(VUB)***

Introducing dynamic covalent chemistries into the design of polymer networks enables reversible network polymerization upon the application of the corresponding trigger (heat, light …). Thermally dissociative chemistries enable to combine the superior properties of chemically crosslinked networks with the (re)processability of thermoplastics. The Diels-Alder cycloaddition reaction is by far the most popular and widely studied thermally dissociative dynamic covalent chemistry. The polymer network structure can be dissociated thermally into a polymer melt, which can be processed using common thermoplastic methods. The viscoelastic properties, thermal and rheological behaviour can be adjusted widely to meet the processing requirements. Judicious design of the monomers, resin formulation, fillers and additives resulted in the successful additive manufacturing of these thermally reversible polymer networks using fused filament fabrication and selective laser sintering. The low melt viscosity and the covalent bonding across the deposited layers result in a low porosity and high isotropy.

The Diels-Alder bonds can also be broken mechanically in a reversible fashion. The broken bonds can reform to recover the polymer network structure and its properties. These self-healing materials have been applied in various applications. Self-healing thermosets have been applied as coatings for the corrosion protection of metallic substrates and on photovoltaics. Self-healing elastomers find applications in, among others, flexible electronics and soft robotics.

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REGISTRATION FEES

Member ATIPIC/BPG:	Free
Member AFTPVA/NVVT:	Free
Non-member ATIPIC/AFTPVA/BPG/NVV	**90,00** EUR (VAT included)
Student:	Free
Speaker:	Free

REGISTRATION & CANCELLING

Registrations are to be made at the latest on **September 27TH 2024** and exclusively with this link:

Registration form

The payment has to be made by transfer on the ATIPIC banking account number BE22 2710 6182 9347 before September 27TH 2024 or by cash or mobile at the entrance of the conference room.
Please mention your first name and last name as communication on your bank transfer.

To cancel your registration please contact by mail info@atipic.be at the latest by **October 3rd 2024.** Any canceling after this date will induce the sending of an invoice for the mentioned amount on the fill-in registration form.

ATIPIC Next events in 2024

October 19th	ATIPIC Relax (visit to Mechelen - Kazerne Dossin + dinner)
December 11th	Visit at SIRRIS

ATIPIC Next events in 2025

February 4th	All-day Symposium & GA at Martin's Red Hotel at Tubize

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