



SYMPOSIUM

TRIBOLOGY OF THE LOW COUNTRIES

April 28th – 29th, 2022

Sint-Pietersabdij, 9000 Gent, Belgium



SYMPOSIUM – TRIBOLOGY OF THE LOW COUNTRIES

The Tribology section of the Dutch “Bond voor Materialenkennis” invites you to a new edition of the “Tribology in the Low Countries” symposium. You will have the opportunity to learn about the latest research in the field of tribology, conducted by research groups in Belgium and the Netherlands. The 2-day programme is very varied and flexible, as one can register for separate modules.

The first module is dedicated to the control of wear. Attention is given to wear mechanisms and wear models illustrated by some practical examples from industry. It is closed with a visit to the Soete Laboratory of Ghent University. The second module, the Sarton-ceremony, puts tribology in a broader perspective with a lecture on the evolution in tribology in the Low Countries over the past. Although starting with the rediscovery of the tribological achievements of an early 18th century Dutch scientist with Belgian roots, emphasis will be given on the last decades. The day will be concluded with a fascinating networking event. During the third module the tribological research that is currently being conducted at the Belgian and Dutch universities, knowledge centres and laboratories, will be presented.

St. Peter's Abbey (St.-Pietersabdij) is a unique historical location in the centre of Ghent. With a history dating back to the 7th century, it is one of the most iconic places in Ghent. The abbey buildings, which date from the mid-17th century, now serve as a cultural centre and the church is still one of the most important central churches in Ghent.



Module 1 – April 28th – Workshop and Laboratory Visit

“Friction And Wear Control For Increased Lifetime And Performance Of Machine Components”

Despite many improvements in recent years, friction and wear of machinery remain a concern for many operators. Both the performance and service life of machine components can be negatively affected by friction and the associated wear. This is particularly worrying when the machine in question is a crucial part of the business process. Controlling friction and preventing wear are therefore of vital technical but also economic importance.

The aim of this workshop is to explain the basic mechanisms of friction and wear and how excessive friction and wear can be prevented. Practical explanations, concrete industrial cases and a laboratory visit will illustrate the possibilities of controlling friction and wear. The lecture will zoom in on typical machine components, on test rigs developed for this purpose and on techniques for determining friction and wear behaviour in situ.

Program

8.45	-	9.20	Registration & welcome coffee
9.20	-	9.30	Welcome - Prof. P. De Baets
9.30	-	10.15	Wear of Mechanical Components <i>Prof. Rob Dwyer-Joyce (Sheffield, UK)</i>
10.15	-	10.30	Coffee break
10.30	-	11.00	Design and maintenance of heavily loaded sliding bearings <i>ir. Dajo Geys (De Vlaamse Waterweg n.v.)</i>
11.00	-	11.30	Maintenance free bearings <i>ing. Erik Dorst (Drie-D)</i>
11.30	-	12.00	Tribology, Fatigue & Fracture @ Soete Laboratory <i>Dr. ir. Koen Van Minnebruggen, Dr. ir. Karen Hemelsoet</i>
12.15	-	13.00	Sandwich Lunch
13.00	-	13.30	Bus transport
13.30	-	15.15	Guided visit to Soete Laboratory
15.15	-	15.45	Bus transport
15.45	-	16.00	Coffee break

Module 2 – April 28th – Sarton Medal Ceremony

George Sarton (1884-1956), one of the founding fathers of the history of science as an academic discipline, was an alumnus of Ghent University. In 1912, one year after his graduation in physics and mathematics, he wrote to a friend: "J'ai décidé de vouer ma vie à l'étude désintéressée de l'histoire des sciences". He established two leading journals in the field (Isis in 1912 and Osiris in 1934) and the History of Science Society. In 1984, at the centenary of Sarton's birthday, Ghent University decided to establish a Sarton Chair of History of Science. Each year the Sarton committee, consisting of representatives of the faculties of Ghent University, selects the Sarton chair holder and the Sarton medallists. The Sarton chair holder and the medallists are invited to lecture on the history of science in the faculties of the university. The lectures are published in the annual journal Sartoniana. (www.sartonchair.ugent.be)

Prof. Harry van Leeuwen, Eindhoven University of Technology, will discuss the leading role that the Low Countries have played in the evolution of tribology, the science that studies friction and wear. The contributions of some prominent figures such as Harmen Blok (1910-2000) and Roel Bosma (1931-2017) will be framed within a broader overview of the most important achievements in the field of tribology in the design of machine components. Also, a look will be taken at the impact of these achievements in our daily lives.

Program

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| 16.00 | - | 16.20 | Sarton Medal Ceremony
- Introduction by <i>Prof. R. Rubens, UGent, Chairman Sarton Committee</i>
- Laudatio <i>Prof. D. Fauconnier, UGent</i> |
| 16.20 | - | 17.30 | Milestones in Tribology in the Low Countries – <i>Em. Prof. Dr. ir. Harry van Leeuwen, Technische Universiteit Eindhoven (TU/e)</i> |
| 17.30 | - | 19.30 | Reception & walking dinner |
| 20.00 | - | 21.00 | Organ concert by Jaco van Leeuwen on the monumental Van Peteghem organ of the St. Pieters church |
| 21.00 | - | 22.00 | Closing Drink |
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Module 3 – April 29th – Seminar: Tribology Of The Low Countries

Researchers from the various Dutch and Belgian universities present the research carried out in the field of tribology. A wide range of topics is covered. Different friction and wear mechanisms are discussed, as well as modern lubrication techniques. Various materials and surface techniques will be discussed. Both experimental and numerical techniques will be discussed. The research will be presented in short presentations, after which there will be time for in-depth discussions. During the poster session and sandwich lunch, there will be ample opportunity to get further acquainted and continue the discussions.

Program

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| 8.30 | - | 9.00 | Registration & welcome coffee |
| 9.00 | - | 9.15 | Welcome - Prof. P. De Baets |
| 9.15 | - | 9.45 | Geotribology: friction in granular materials.
<i>Dr. Tanmaya Mishra, UTwente</i> |
| 9.45 | - | 10.30 | Pitches of ongoing Research in the Low Countries |
| | | | 1. A tribological approach towards oral tactile perception of astringency in plant-based products – <i>Shari Gamaniel, U Twente</i> |
| | | | 2. Coupling effect of wear and rolling contact fatigue in line contact problems: modelling of damage profile evolution and fatigue life assessment – <i>Mostafa Gargourimotlagh, UTwente</i> |
| | | | 3. Enhancing Interfacial Bonding in Metal-Thermoplastic Joints by Plasma Electrolytic Oxidation – <i>Atiyeh Adelina, UTwente</i> |
| | | | 4. Magneto-rheological lubricated journal bearing design – <i>Gerben van der Meer, TU Delft</i> |
| | | | 5. Compliant hydrostatic bearing design – <i>Dave Sonneveld, TU Delft</i> |
| 10.30 | - | 10.45 | Coffee Break |

- 10.45 - 11.15 Cryogenic roller bearings
Prof. Jean-Luc Bozet, Université de Liège
- 11.15 - 12.00 Pitches of ongoing Research in the Low Countries
1. EHL theory applied to nano-imprint lithography – *Jelle Snieder, TU Delft*
 2. Multi-scale modelling of Thermo-Elastohydrodynamic Lubrication (TEHL) in Bearings and Gears – *Peyman Havaej, UGent*
 3. In-Situ Measurement of Thermo-Elastohydrodynamic Lubrication (TEHL) in Rolling Element Bearings at dynamic operating conditions – *Manjunath Manju, UGent*
 4. The process of churning in grease-lubricated bearings – *Sathwik Chatra, UTwente*
 5. Numerical Modelling of Multi-Valued Friction Behaviour of Rough Lubricated Surfaces – *Kristof Driesen (KUL)*
 6. Experimental simulation of erosion of agricultural tools – *Adam Kalácska, UGent*
- 12.00 - 13.00 Scientific Poster Presentations
- 13.00 - 14.00 Sandwich lunch
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REGISTRATION

Module 1	<ul style="list-style-type: none">WorkshopVisit Soete Laboratory	€ 250,- (*)
Module 2	<ul style="list-style-type: none">Sarton Medal CeremonyOrgan concert	Free
Module 3	<ul style="list-style-type: none">Seminar	€ 200,- (*)
Modules 1-3	<ul style="list-style-type: none">Workshop + Sarton + Seminar	€ 380,- (*)
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(*) Discounts	<ul style="list-style-type: none">MSc. StudentsPh.D. Students:Members of BMVK, section Tribology:Members of BMVK:	<ul style="list-style-type: none">Free-30%-20%-10%

St. Peter's Abbey is very easy to reach. If you come by car, there is a public parking garage under St.-Pieters-square. For those who come by public transport, the location is at 20 minutes walking distance from the St.-Pieters station.

Those who like to spend the night in Ghent can use one of the many hotels in Ghent within a stone's throw of St. Peter's Abbey. Some recommendations:

- [NH Hotel Gent Belfort](#): (± € 150,- pp/night)
- [Novotel Gent Centrum](#) (± € 131,- pp/night)
- [Merveilleux](#) (± € 128,- pp/night)
- [Ibis Gent Centrum St. Baafs Kathedraal](#) (± € 90,- pp/night)
- [B&B Hotel Gent Centrum](#) (± € 85,- pp/night)

Registration

Please register at <https://forms.gle/HXvZv34oqpfRJWAm9>



Registration Deadline: April 18th 2022
Maximum 150 pers. / Module.