



**SUMMER SCHOOL** | 4 - 6 SEPTEMBER 2024

## MATERIOMICS

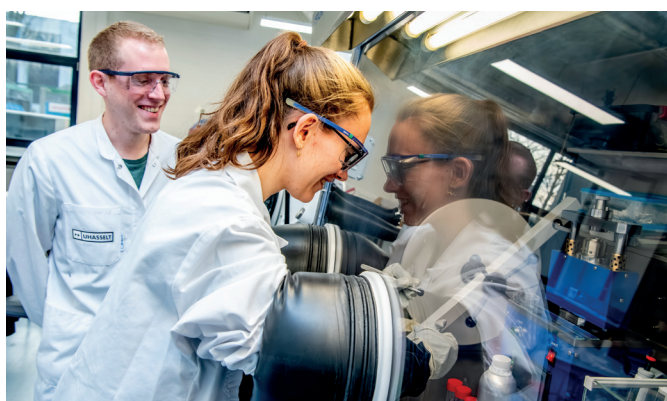
Innovative materials from healthcare across  
quantum to sustainable technologies.

Modern materials science requires an interdisciplinary approach embracing chemistry and physics, as well as experimental and computational methods for addressing the most critical technological challenges in the world today and in the future, including climate change, pandemics, energy transition, safe communication technologies, etc. This summer school, organized by the Master of Materiomics (Hasselt University), introduces students to materials, their design, their properties and their applications with respect to the forementioned grand challenges. Particular focus is on innovative materials for energy generation, storage and efficiency, sustainable materials for circular processes, high tech materials for quantum technologies and advanced materials for innovative healthcare.

The summer school targets 2<sup>nd</sup> and 3<sup>rd</sup> year bachelor students from various departments (e.g. materials science, physics, (bio) chemistry, (bio) engineering) who want to get acquainted with state of the art research in materials science explained at bachelor level. Among all the applications, up to 25 B.Sc. students will be selected for the summer school based on their motivation and curriculum vitae.

The three day summer school covers lectures and hands on sessions, which are held on campus Diepenbeek of Hasselt University, and a visit to EnergyVille (Thorpark Genk) which is a state of the art research facility with activities focusing on renewable energy and intelligent energy systems. The students will also have the opportunity to interact with young researchers working in the Institute for Materials Research (Imo). Besides the learning activities, there will be ample time for social activities to enjoy the Diepenbeek campus and the city of Hasselt, including a BBQ, a visit to Hasselt and a closing reception. The summer school has a fee of 50 euros which includes the participation to the summer school, as well as coffee and lunch breaks, bus transfer to EnergyVille and social activities.

In this summer school, professors and researchers of Hasselt University as well as international guest speakers from the University of Lorraine (France) and Cologne (Germany) will cover subjects on innovative materials design. On the first day, there will be a welcoming session, followed by lectures related to materials for energy generation, storage and efficiency, and in the afternoon a visit with lab tour to EnergyVille. On the second day materials for quantum technologies as well as sustainable materials will be addressed via lectures and a demo session. On the last day lectures and a practical session will give insights in materials for innovative healthcare. Also a poster session is organised with the possibility to network with researchers from the university and the Institute for Materials Research working in the field of materials science (physics and (bio)chemistry). The summer school will conclude with a recap session and a farewell reception.



## How to apply?

Please send your application to [materiomics@uhasselt.be](mailto:materiomics@uhasselt.be) along with a 1 page motivation letter and curriculum vitae. The applicants selected for the summer school will be informed about possible accommodation, and the final summer school program around 5 July 2024.

## Master of Materiomics

The Master of Materiomics (120 ECTS) aims to educate students to develop new, innovative sustainable materials focusing on one of the four specializations: materials for quantum technologies, energy, circularity and advanced healthcare. Bachelor students (NL) with a background in chemistry or physics can enroll in the program.

## Summer school deadlines

Application submission  
Applicant notification  
Applicant registration

01 July 2024  
05 July 2024  
01 August 2024



## Summer school Chair and Committee

Prof. dr. An Hardy  
Prof. dr. ir. Dries Vandamme  
Prof. dr. Wouter Van Gompel  
Prof. dr. Petr Siyushev  
Dr. Sarah Doumen  
Prof. dr. ir. Koen Vandewal

Prof. dr. dr. Danny Vanpoucke  
Prof. dr. Geert Jan Graulus  
Prof. dr. Nianjun Yang  
Prof. dr. Anna Ermakova  
Dr. Dorien Baeten

## In collaboration with



	Wednesday 04.09	Thursday 05.09	Friday 06.09
	Energy	Quantum & Circularity	Health
08:30 - 09:00	Registration		
09:00 - 09:30	Welcome & Opening lecture <b>Prof. Koen Vandewal</b>	Quantum computing <b>Prof. Petr Siyushev</b>	Development of cancer on chip devices: the route for the development of new therapeutics <b>Prof. Halima Alem-Marchand (Université de Lorraine)</b>
09:30 - 10:00		How to do quantum mechanical calculations in practice? <b>Prof. Danny Vanpoucke</b>	
10:00 - 10:30	Materials for energy application <b>Dr. Veronika Brune (University of Cologne)</b>	Quantum sensing <b>Prof. Anna Ermakova</b>	Challenges in in vitro nanotoxicology, the relevance of the real dose delivered <b>Prof. Olivier Joubert (Université de Lorraine)</b>
10:30 - 11:00		Oscar Qube <b>Dr. Jaroslav Hruby</b>	
11:00 - 11:30	Storing renewable energy in molecular bonds, from 'simple' H <sub>2</sub> to complex molecules <b>Dr. Bjorn Joos</b>		Some approaches to rational drug design <b>Prof. Wilfried Langenaeker</b>
11:30 - 12:00			
12:00 - 12:30	Lunch	Lunch	Lunch with poster session
12:30 - 13:00	Visit to EnergyVille labs	The origins and future of our plastic pollution crisis <b>Prof. Louis Pitet</b>	Practical session Unleashing nature's toolbox: Dive into protein based biomaterials <b>Prof. Geert Jan Graulus</b>
13:30 - 14:00			
14:00 - 14:30			
14:30 - 15:00			
15:00 - 15:30		Better batteries with biochar <b>Prof. Dries Vandamme</b>	
15:30 - 16:00			
16:00 - 16:30			
16:30 - 17:00	Social activity	Social activity	Closure & farewell reception
17:00 - ...			

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For more information:

[www.uhasselt.be/materiomics](http://www.uhasselt.be/materiomics)