



PROGRAMME
RPK-C 2023
POLYMER PROPERTIES



- 14 April 2023** *Three short introductory lectures on key physical properties of polymers and how they influence performance via processing and mechanics*
- 01a Introduction Physical Properties**
Dr.ir. Lambert C.A. van Breemen (TU/e) & Dr.ir. Tom A.P. Engels (DSM-TU/e)
 - 01b Introduction Polymer Processing**
Dr.ir. Lambert C.A. van Breemen (TU/e) & Dr.ir. Tom A.P. Engels (DSM-TU/e)
 - 01c Introduction Mechanical Properties**
Dr.ir. Lambert C.A. van Breemen (TU/e) & Dr.ir. Tom A.P. Engels (DSM-TU/e)
- 21 April 2023** *Lectures on the mechanical performance of polymers and polymer-based composites and how it can be influenced by production and processing*
- 02 Polymer Composites**
Dr.ir. Wouter J.B. Grouve (UT)
 - 03 Polymer Mechanics**
Prof.dr.ir. Leon E. Govaert (TU/e - UT)
- 12 May 2023** *Lecture on stabilizing polymers to extend their useful life, and a lecture on the physics of polymer crystallization and how it can influence and enhance properties*
- 04 Stability of polymer systems**
Dr. Pieter Gijsman (Gijsman-durability-advisory)
 - 05 Crystallization of polymers**
Dr. Jules A.W. Harings (AMIBM, NL & Germany)
- 26 May 2023** *A set of lectures on the physics and properties of elastomer-based systems; both from an academic and industrial perspective.*
- 06 Properties of Elastomers**
Prof.dr. Costantino Creton (ESPCI, France)
 - 07 Elastomer properties from an industrial perspective**
Dr. Salvatore Coppola (Versalis - ENI, Italy)
- 02 June 2023** *Two lectures discussing polymer adhesion and self-healing, focusing on how polymer chemistry and physics can be used to control these properties.*
- 08 Polymer materials for adhesion**
Prof.dr. Marleen M.G. Kamperman (RuG)
 - 09 Polymer materials for self-healing**
Dr. Santiago J. Garcia (TUD)
- 09 June 2023** *A set of lectures on advanced high-modulus/high-strength fibers each approaching the target of exceptional mechanical properties via different conceptual routes:*
- 10 High Performance fibers based on flexible chains**
Dr. Harm van der Werff (Avient)
 - 11 High Performance fibers based on rigid rod molecules**
Dr. Hanneke Boerstoel (Teijin Aramid)
- 16 June 2023** *Two lectures on functional and responsive polymer systems. Highlighting the exciting and developing field of polymers used for actuation and sensing.*
- 12 Polymer materials for soft robotics**
Dr. Daqing Liu (TU/e)
 - 13 Polymer materials in microsystem applications**
Prof.dr.ir. Jaap M.J. den Toonder (TU/e)

23 June 2023

A set of lectures dealing with polymers that are used to regulate the transmission of small molecules (permeability) and polymers used to regulate the transmission of ElectroMagnetic fields.

14 Permeability of polymer materials

Dr.ir. Alexander Stroeks (DSM)

15 Electrically conductive polymer systems and their performance in the ElectroMagnetic range

Prof.dr.ir. Ruth M. Cardinaels (KUL, Belgium)

30 June 2023

Lecture dealing with polymer membranes, focusing on their processing, architecture and current and future applications. And a lecture focusing on the fast-developing field of polymer recycling and sustainability: what are the most promising routes based on the specific properties of a polymer system.

16 Polymer materials for membrane surfaces and its applications

Prof.dr. Wiebe M. de Vos (UT)

17 Polymer properties related to recycling and sustainability

Prof.dr. Jean-Paul Lange (Shell – UT)

Summer 2023

Exam RPK-C (open book) 1 - 4 pm

Re-sit exam RPK-C open book 1-4 pm

Details of the programme are subject to change.

All lectures will be given in English.

**All lectures will be held in Utrecht,
starting at 10:15 am, ending at 5:00 pm**