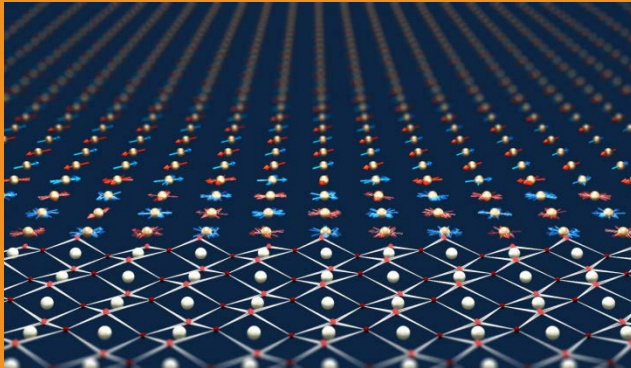


Welcome to the 2nd 4TU.HTM symposium

Dutch Materials

Materials at the atomic scale
Bio- and bio-inspired materials



October 13, 2016



4TU.HTM

4TU Research Centre High-Tech Materials (4TU.HTM)

aims to

- strengthen collaboration between the four TU's
- strengthen the research field Materials Science and Engineering
- stimulate education in Materials Science and Engineering

Research Centre 4TU High-Tech Materials

including Wageningen University & Research
since May 27, 2016



including Wageningen University & Research since May 27, 2016

www.mrs.org/publications/bulletin

The Materials Science of

in preparation:
4TU.HTM workshop Phase transformations in chocolate and steel

Chocolate is a common confectionery material throughout the world that has seen generally increasing production trends over the last 10 years.¹ Making chocolate requires an understanding of how the consumer perceives it. The preferred type of choco-

which the chocolate is heated and sheared prior to its final solidification.

The complexity of chocolate arises from the polymorphic nature of its constituent fats, which can come in at least five crystal forms. Cocoa butter is chemically a multi-

in Table II. given by W defined the tem (I-VI) v

triglycerides have been i techniques melting unc recently, diff (DSC) and combination

Six forms Lutton using however, to data based component of polymorp

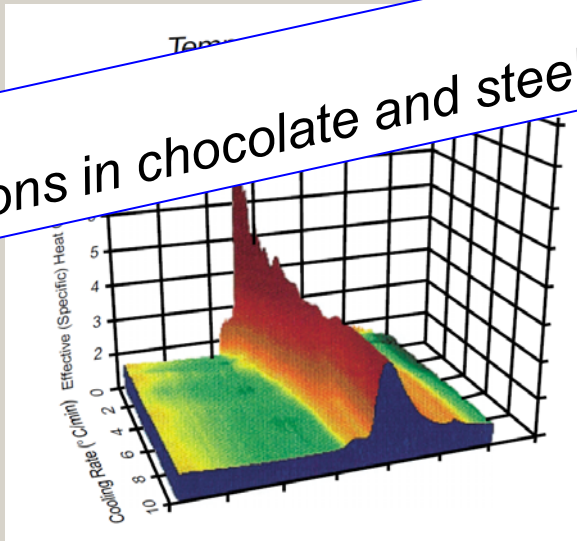


Figure 3. Effective (specific) heat capacity of milk chocolate as a function of temperature and cooling rate. Data obtained using differential scanning calorimetry. (From Reference 16.)

Research Centre 4TU High-Tech Materials



including Wageningen University & Research
since May 27, 2016

Physical Chemistry & Soft Matter:

polymer gels, rheology
bioinspired materials, polymer chemistry
conjugated polymers, material physics
designer proteins, biomaterials

Organic Chemistry:

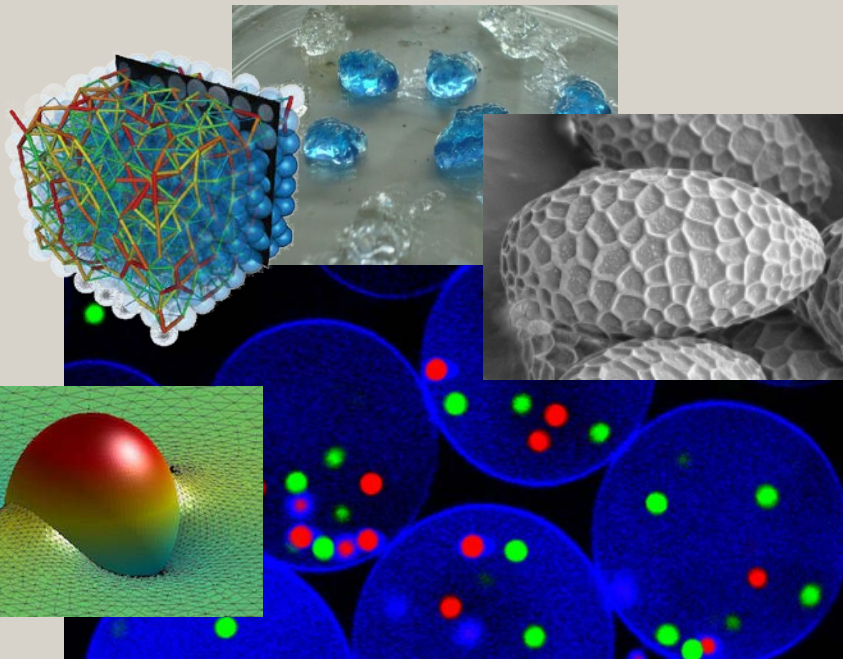
surface chemistry
supramolecular polymers
DNA-based materials

Bionanotechnology:

nanoparticles, NMR

Biobased Chemistry:

catalysis, biobased chemicals



Activities 4TU.HTM

- Research programme *New horizons for designer materials*
- Yearly symposium Dutch Materials
- Support joint Materials Science workshops
- Improve accessibility Materials Science and Engineering
- Stimulate Summer Schools and Graduate Courses
- Finance collaborative projects
- Develop activities to attract students
- Website www.4TU.nl/HTM




website <http://www.4TU.nl/HTM>

Contact

4TU.Federation [Home](#) [Research](#) [New Horizons](#) [Education](#) [Funding](#) [People](#) [Events](#) [4TU.HTM News](#) [About 4TU.HTM](#) [Agenda](#)

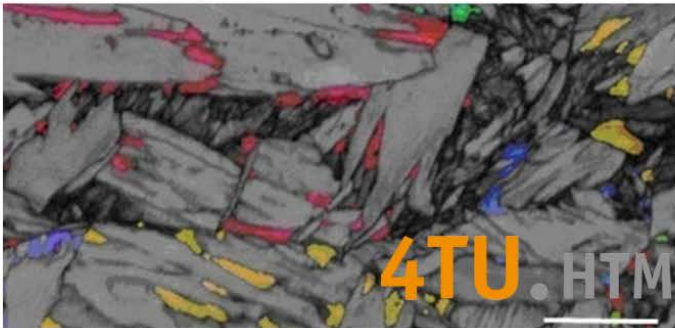
Home > [High-Tech Materials](#)



TU Delft
TU/e
UNIVERSITY OF TWENTE

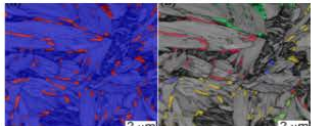
High-Tech Materials

The 4TU Research Centre High-Tech Materials (4TU.HTM) aims to stimulate and intensify the academic research and development of new innovative materials.



Latest updates


Steels for fusion reactors



Inês Carvalho, Steels for fusion reactors (TU Delft) - Thesis...

On 23 September 2016, Inês Carvalho defended her thesis 'Steels for fusion reactors: Eurofer97' at Delft University of Technology.


Registration form



4TU.HTM Dutch Materials 2016

This year, the annual 4TU.HTM Symposium 'Dutch Materials' will be held in Utrecht (Jaarbeurs), on Thursday 13 October...

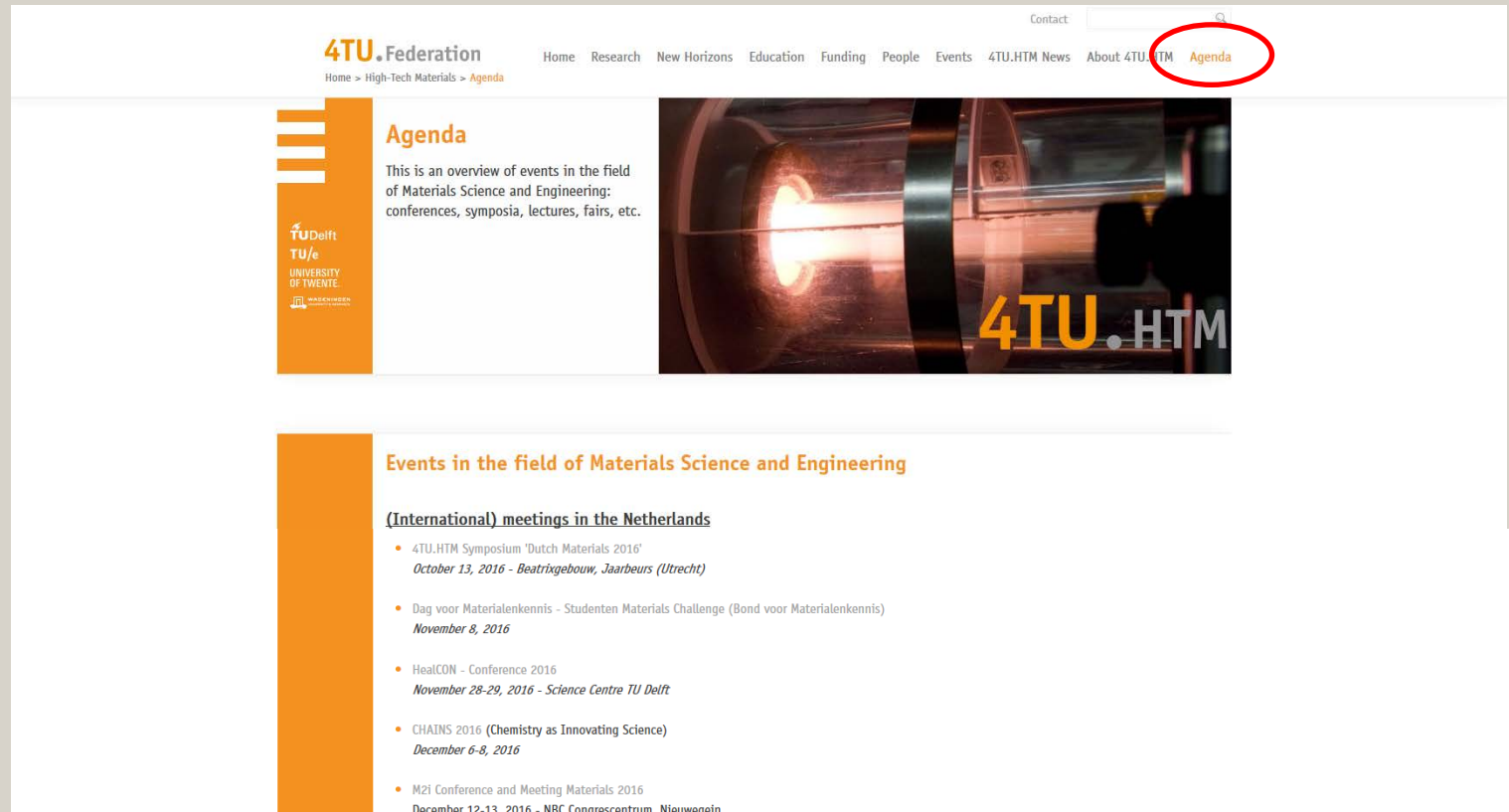
Workshop: Liquid crystal as functional material



Workshop: Liquid crystal as functional material

This two-day workshop on 'Liquid crystal as functional material' was organized by Eindhoven University of Technology and...

website <http://www.4TU.nl/HTM>: Agenda




Contact

4TU Federation
Home > High-Tech Materials > Agenda

Home Research New Horizons Education Funding People Events 4TU.HTM News About 4TU.HTM **Agenda**

Agenda

This is an overview of events in the field of Materials Science and Engineering: conferences, symposia, lectures, fairs, etc.



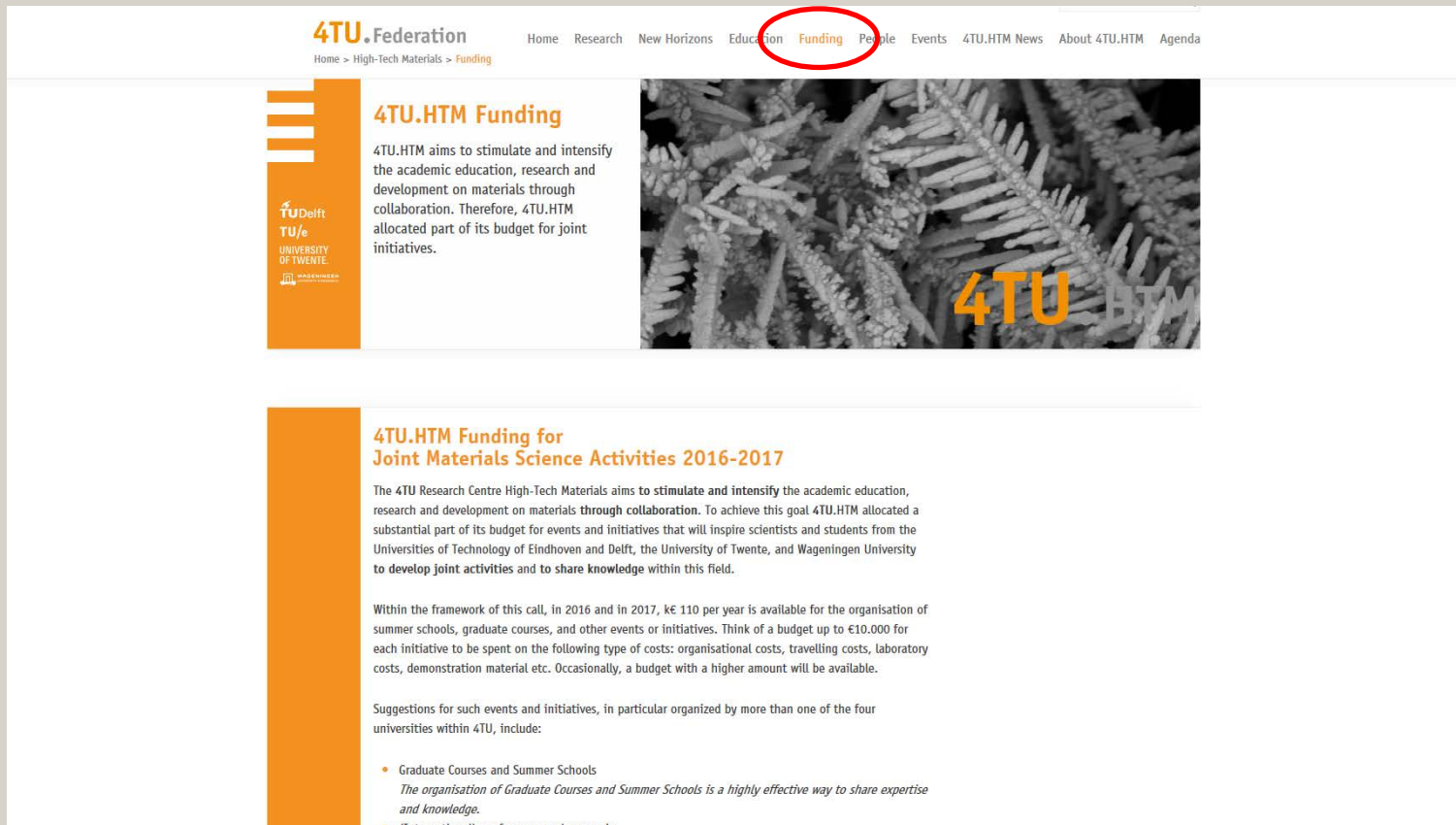
4TU.HTM

Events in the field of Materials Science and Engineering

(International) meetings in the Netherlands

- 4TU.HTM Symposium 'Dutch Materials 2016'
October 13, 2016 - Beatrixgebouw, Jaarbeurs (Utrecht)
- Dag voor Materialenkennis - Studenten Materials Challenge (Bond voor Materialenkennis)
November 8, 2016
- HealCON - Conference 2016
November 28-29, 2016 - Science Centre TU Delft
- CHAINS 2016 (Chemistry as Innovating Science)
December 6-8, 2016
- M2i Conference and Meeting Materials 2016
December 12-13, 2016 - NBC Congrescentrum, Nieuwegein


website <http://www.4TU.nl/HTM>: Funding for collaboration



The screenshot shows the website for 4TU Federation, specifically the Funding page. The navigation menu includes Home, Research, New Horizons, Education, Funding (highlighted with a red circle), People, Events, 4TU.HTM News, About 4TU.HTM, and Agenda. The breadcrumb trail is Home > High-Tech Materials > Funding.

4TU.HTM Funding

4TU.HTM aims to stimulate and intensify the academic education, research and development on materials through collaboration. Therefore, 4TU.HTM allocated part of its budget for joint initiatives.



4TU.HTM Funding for Joint Materials Science Activities 2016-2017

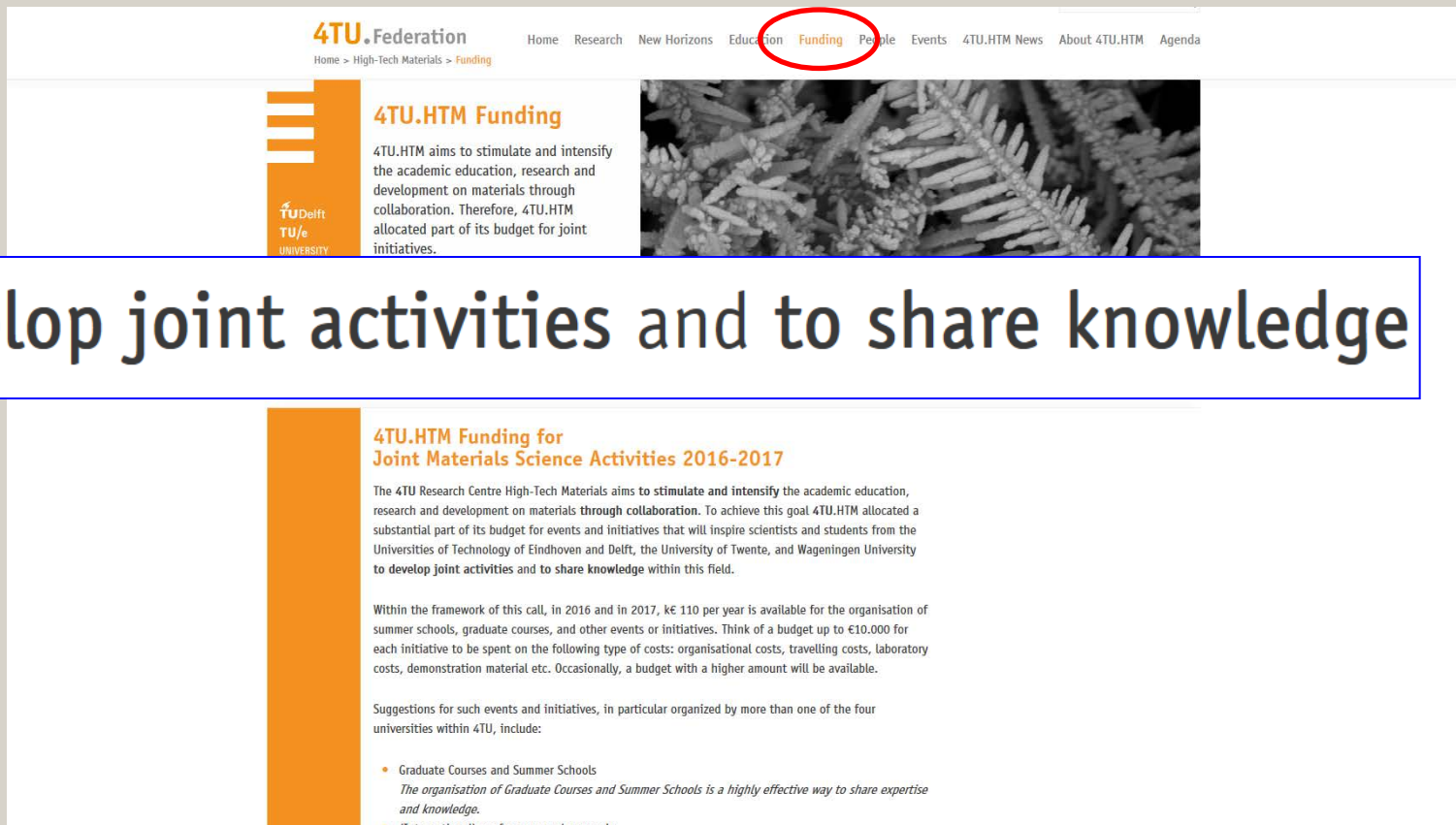
The 4TU Research Centre High-Tech Materials aims to **stimulate and intensify** the academic education, research and development on materials **through collaboration**. To achieve this goal 4TU.HTM allocated a substantial part of its budget for events and initiatives that will inspire scientists and students from the Universities of Technology of Eindhoven and Delft, the University of Twente, and Wageningen University to **develop joint activities and to share knowledge** within this field.

Within the framework of this call, in 2016 and in 2017, k€ 110 per year is available for the organisation of summer schools, graduate courses, and other events or initiatives. Think of a budget up to €10.000 for each initiative to be spent on the following type of costs: organisational costs, travelling costs, laboratory costs, demonstration material etc. Occasionally, a budget with a higher amount will be available.

Suggestions for such events and initiatives, in particular organized by more than one of the four universities within 4TU, include:

- Graduate Courses and Summer Schools
The organisation of Graduate Courses and Summer Schools is a highly effective way to share expertise and knowledge.
- (International) conferences and symposia

website <http://www.4TU.nl/HTM>: Funding for collaboration



4TU.Federation
Home > High-Tech Materials > Funding

Home Research New Horizons Education **Funding** People Events 4TU.HTM News About 4TU.HTM Agenda

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to develop joint activities and to share knowledge

4TU.HTM Funding for Joint Materials Science Activities 2016-2017

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Research programme *New horizons in designer materials*

- *Understanding structure formation in hierarchical hybrid materials through in situ liquid phase microscopies*, **Joe Patterson**, Nico Sommerdijk (TU/e)
- *“From Flatland to Spaceland“: towards advanced, 3-dimensional materials bottom-up, from polymer decorated nano- and microstructures*, **Maciek Kopec**, Julius Vancso, Bert de With (UT, TU/e)
- *Reversible crosslinking: a potent paradigm for designer materials*, **Nick Tito**, Kees Storm, Wouter Ellenbroek (TU/e)
- *Metamaterials with tunable dynamical properties*, **Priscilla Brandão Silva**, Varvara Kouznetsova, Marc Geers (TU/e)
- *Superconducting carbon nanotubes composite as vertical interconnect for qubit integration at cryogenic temperature*, **René Poelma**, Kouchi Zhang (TUD)
- *Communicating surfaces*, **Danqing Liu** (TU/e)

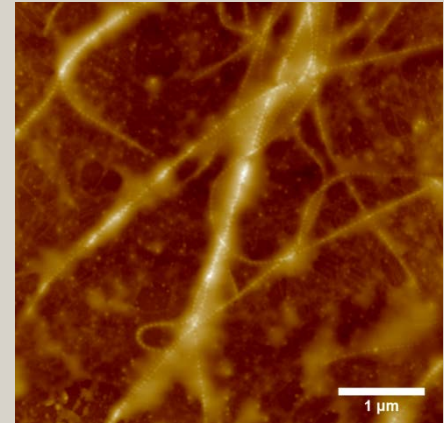
Poster session, 13:00 h - 15:00 h

visit prof. Kris Matyjaszewski to Delft, July 6, 2016



Graduate Courses (for Ph.D. students)

- Adhesion Science, Engineering and Technology
- Application of electron back scatter diffraction in analysis of phase transformations and deformation
- Fatigue of Metals
- The Physics of Arc Welding
- Introduction to Electrochemistry, Electrochemical methods and Applications
- Detecting provenance of materials in art and archaeology
- Dislocations
- Recycling of engineering materials
- Soft and granular matter
- Mechanics in microsystems
- Solving Structural Acoustic coupled problems
- Discontinuities, interfaces, fluid-structure interaction and multi-phase problems
- Advanced Dynamics
- Experimental Engineering Mechanics
- Multi-scale and micromechanics
- Advanced Thermodynamics
- Numerical Methods for Chemical Engineers
- Computational Fluid Dynamics
- Rheology & Polymer Processing
- Polymer Properties
- Polymer Chemistry
- Experimental techniques



4TU.HTM



- Officially established November 10, 2014
- Assigned for 4 years 2014 – 2017
- k€ 150 per year coordination: organisation and activities
k€ 500 per year research programme
- Evaluation end 2016, decision on continuation in 2017

4TU.HTM

Your contributions

- Organise joint activities
- Graduate Courses
- Overview Materials Science and Engineering
- Development of demonstration material



4TU.HTM symposium *Dutch Materials*

Morning session: **Materials at the atomic scale**

3D material characterisation at the atomic scale by Atom Probe Tomography
prof.dr. Paul Koenraad, Eindhoven University of Technology

Atomistic simulations in materials science: nanoplasticity and phase transformations

prof.dr. Herbert Urbassek, University of Kaiserslautern, Germany

4TU.HTM symposium *Dutch Materials*

12:30 h Lunch

13:15 h Stand-up Poster Presentations of 4TU posters on Materials Science and Engineering, incl. *New Horizons in Designer Materials*

14:00 h Poster session: time to view and discuss posters

15:00 h Start afternoon session

4TU.HTM symposium *Dutch Materials*

Afternoon session: **Bio- and bio-inspired materials**

- 15:00 h *Designing artificial virus capsid proteins*, Lione Willems, M.Sc., Wageningen UR
- 15.15 h *Lipid bilayers formed on silicon supported polyelectrolyte multilayers*, dr. Lukasz Poltorak, TU Delft
- 15.30 h Biodegradable polymer networks and scaffolds prepared by stereolithography, Bas van Bochove, M.Sc., University of Twente
- 15.45 h *Structural proteins: Self-Assembling Biopolymers for Various Applications*, prof.dr. Thomas Scheibel, University of Bayreuth, Germany

4TU.HTM

4TU Research Centre High-Tech Materials (4TU.HTM)

- Strengthen collaboration between the four TU's
- Strengthen the research field Materials Science and Engineering
- Stimulate education in Materials Science and Engineering

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Reina Boerrigter, R.Boerrigter@tudelft.nl

<http://www.4TU.nl/HTM>

