

ARC CBBC

More than half of our ARC CBBC members are also member of the Netherlands Center for Multiscale Catalytic Energy Conversion (MCEC) or the Research Center for Functional Molecular Systems (FMS). These so-called Gravitation Programs are long-term fundamental research programs, funded by the Dutch Ministry of Education, Culture and Science.

Both programs are active in the field of highly interdisciplinary, frontier research. And both aim to educate a new generation of talented scientists with the expert guidance of renowned researchers, thus establishing long-term collaborations amid a uniquely composed scientific setting.

Members of ARC CBBC form the link between MCEC and FMS. They can bridge the disciplinary and/or individual distance between PhDs and postdocs from both Gravitation Programs, as well as their other staff members, and make an acquaintance happen – for example, by inviting them personally to open ARC CBBC scientific events and training. This way, ARC CBBC members can help to create new connections and possibly new scientific collaborations.

FMS



**Research Center for
Functional Molecular Systems**
Gravitation Program - The Netherlands

The organic and macromolecular chemistry teams of Eindhoven University of Technology, Radboud University and University of Groningen are brought together in this partnership, to extend the frontiers of chemical self-assembly.

Starting date: 1 February 2013

Management team: professors Bert Meijer (chair), Ben Feringa, Wilhelm Huck and Roeland Nolte

www.fmsresearch.nl

MCEC



MCEC

Netherlands Center for
Multiscale Catalytic Energy Conversion

MCEC aims to develop novel as well as more efficient catalytic processes to produce the fuels and materials of the future. The program combines chemistry, physics and engineering, and interconnects internationally renowned seniors and up-and-coming talented researchers, of the three universities involved: Utrecht University, Eindhoven University of Technology and University of Twente.

Starting date: 1 September 2014

Management team: Bert Weckhuysen (chair), Hans Kuipers, Emiel Hensen, Detlef Lohse, Albert van den Berg, Alfons van Blaaderen and Rutger van Santen as senior consultant of the consortium

www.mcec-researchcenter.nl
www.mcec-matters.com



Scientific aim

To gain a deeper understanding of the molecular mechanisms, structures, and chemical processes that lead to living systems. Towards this goal, four research programs were established to complete a single grand challenge: the construction of functional life-like molecular systems.

Developing radically improved catalytic energy conversion processes, which are capable of efficiently converting the feedstocks of today and tomorrow. The wish for a more efficient and sustainable production of transportation fuels, chemicals and materials, requires the development of smart catalysts and related catalytic processes. These processes have to perform with optimal transport of heat and mass at every possible scale: from the atomic level of the catalyst material to that of the actual reactor.

Research programs:



Adaptive Nanosystems -
Bio-inspired Molecular Systems -
Nanoscopically Structured Functional Materials -
Out-of-Equilibrium Systems -

The following research areas are of interest:

- Biomass Conversion
- Syngas Conversion
- Future Methodologies in Catalysis & Solar Fuels
- Fluidic Systems
- Nanoreactors
- Nanobubbles

Furthermore

Another key objective of the FMS Research Center is the education of new generations of researchers. To this end the FMS has (co-)organized several courses and seminars in the field of Supramolecular Chemistry and Out-of-Equilibrium in the last four years.



Additionally, internationally renowned experts in these fields, including some of the members of our Scientific Advisory Panel, have been invited in several occasions to tour The Netherlands and in this way give PhDs and postdocs the chance to discuss their research and learn from leading scientists in the field.

Some of them were invited in the context of the Netherlands Supramolecular Chemistry Award and Scholar Award, a yearly award initiated by the FMS Research Center with the intention to recognize and reward outstanding scientists in the field of Supramolecular Chemistry.

MCEC believes that the key to success lies in scientific collaboration beyond the existing boundaries of disciplines and institutions. That's why MCEC stresses the importance of multidisciplinary research and education.

An important objective is to equip MCEC researchers with a broad set of skills, knowledge and experience. The long-term goal is to contribute to the training of a new generation scientists and engineers, who will proceed their careers in academia or in the industry, thus contributing to a more sustainable society.

To ensure this, MCEC School has been established (for 2015, 2016 and 2017): an integrated, five-day program, designed accordingly to the multidisciplinary approach of its research, accredited with 6 ECTS (2 yearly).

MCEC has also created MCEC-matters.com, which functions as a public-friendly website that helps explaining the (purposes of the) research conducted at MCEC, as well as an outreach platform for the contributing scientists.