

Sustainable energy materials for the future: the case of the Master of Materiomics

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MASTER OF MATERIOMICS

Societal grand challenges



**Materials play
a central role!**

In the Master of Materiomics, one of the specialisation pillars is therefore: **Materials for energy generation, storage and conversion**

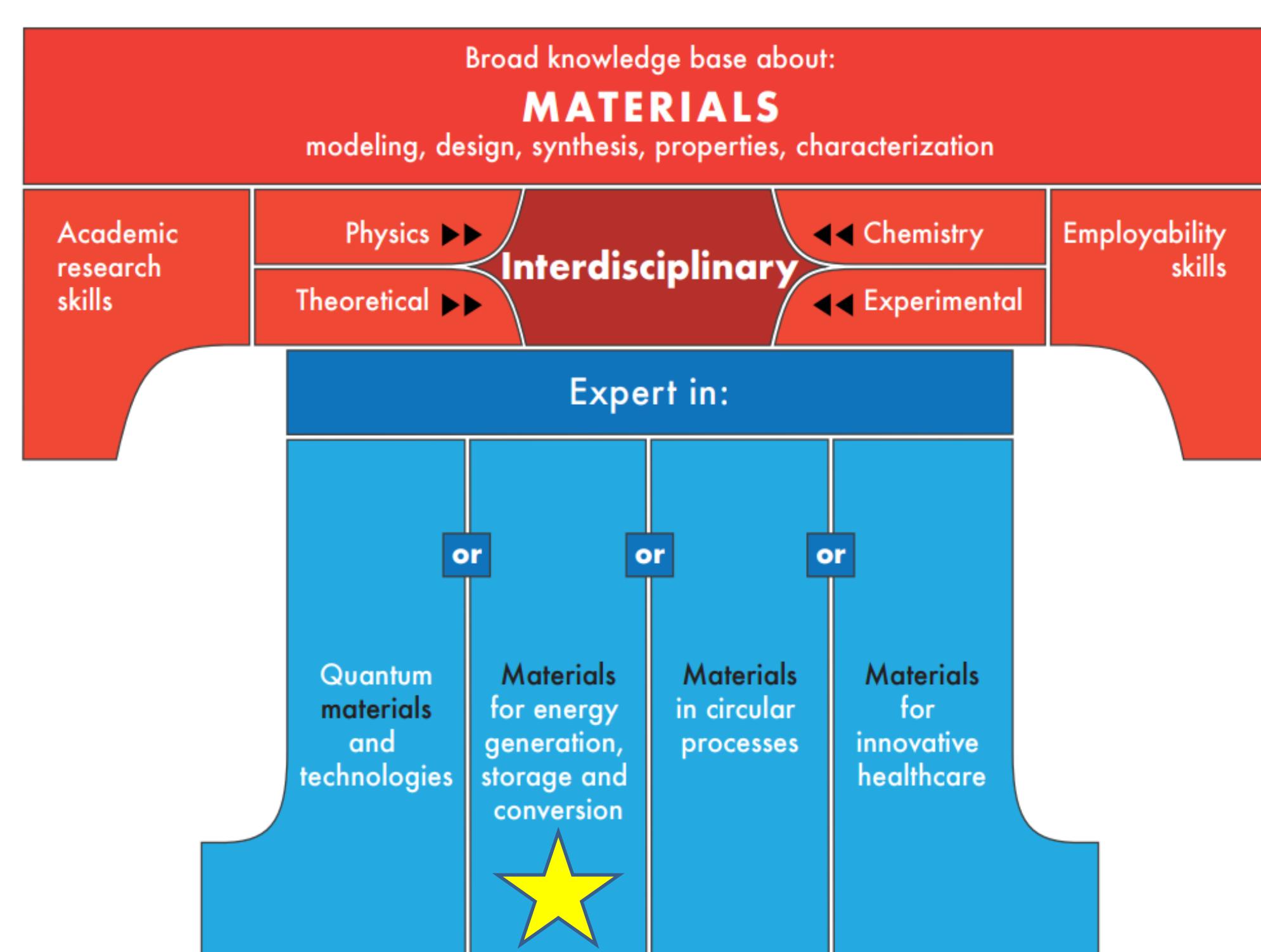


Figure 1. Profile of the Master of Materiomics: interdisciplinary T-shaped professional.
Red: solid foundation (1st master year) and blue: specialisation (2nd master year)

ENERGY PILLAR

Energy@materiomics

Materials for



Energy conversion PV

Electrochemical
energy storage

Power to molecules



Students in materiomics will be trained in the design, improvement and characterization of **renewable materials for energy applications** such as **batteries, solar cells, and hydrogen cells**

Examples of courses

[Sustainable materials and energy](#)

[New materials for photovoltaics](#)

[Catalysis for energy conversion, storage and efficiency](#)

[Conversion of materials and energy](#)

[Big data and high throughput based modelling for energy materials](#)

[Machine learning and artificial intelligence in modern materials science](#)

ENERGY EXPERTS TEACHING AT THE MASTER OF MATERIOMICS



Prof. dr. Marlies Van Bael

- Director Institute for Materials Research
- Responsible IMO-Design & Synthesis of Inorganic Materials
- Full professor chemistry
- Expertise: Synthesis of inorganic and hybrid (nano)materials for electrochemical energy storage, energy efficiency, power to molecules



Prof. dr. Nianjun Yang

- Responsible IMO-Electrochemistry of Functional Materials
- Professor chemistry
- Expertise: Carbon-based functional materials, electrochemistry and catalysis



Prof. dr. Pascal Buskens

- Principal scientist TNO
- Guest professor
- Expertise: Nanomaterials for applications in energy efficiency, energy conversion & storage and sustainable energy



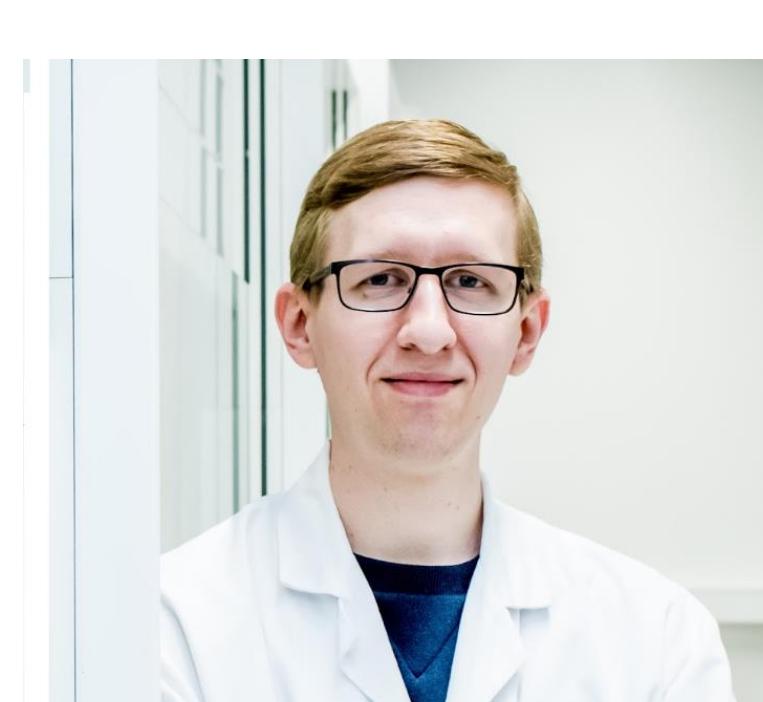
Prof. dr. Wouter Maes

- Responsible IMO-OBPC-Design and Synthesis of Organic Semiconductors
- Chair of the Chemistry Department
- Full professor chemistry
- Expertise: Organic semiconductors for organic electronics and healthcare applications



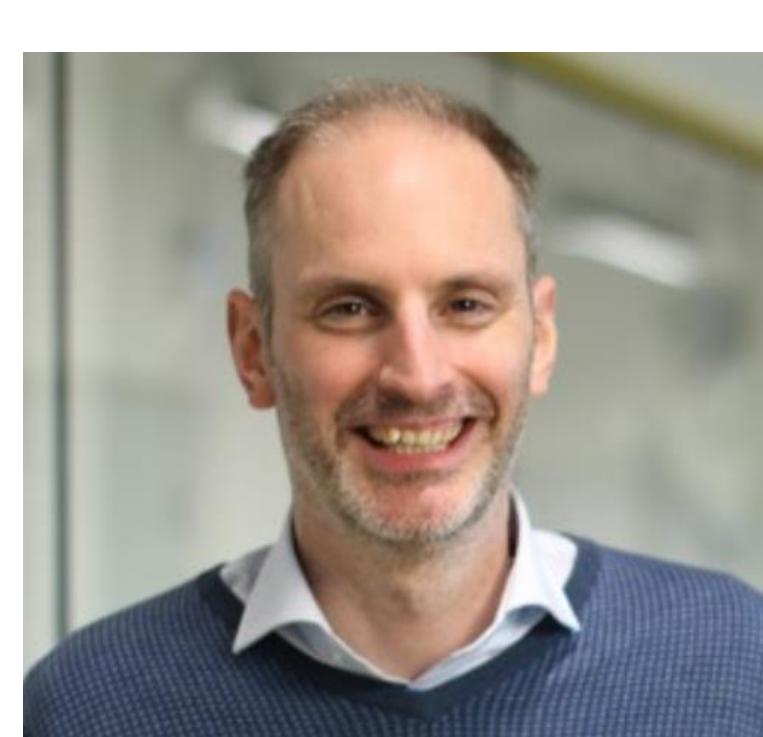
Prof. dr. An Hardy

- Co-responsible IMO-Design & Synthesis of Inorganic Materials
- Full professor chemistry
- Expertise: Synthesis of inorganic and hybrid (nano)materials for electrochemical energy storage, energy efficiency and power to molecules



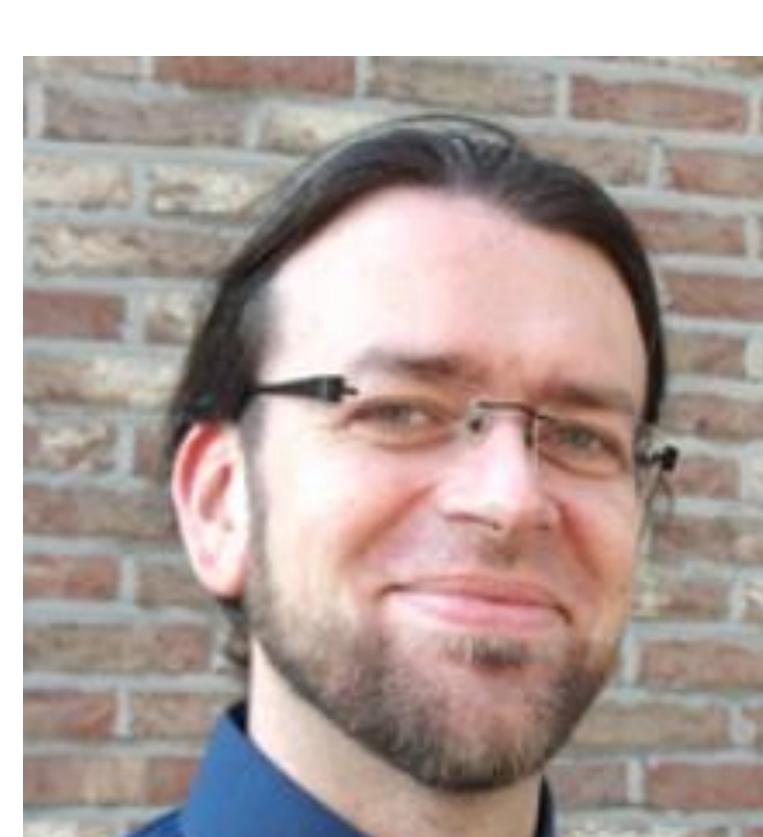
Prof. dr. Wouter Van Gompel

- Responsible IMO-OBPC Hybrid Materials Design
- Tenure track assistant professor chemistry
- Expertise: Synthesis and design of hybrid materials towards optoelectronic applications e.g. solar cells and light-emitting devices



Prof. dr. ir. Koen Vandewal

- Responsible IMO-MAF-Organic optoelectronics
- Full professor physics
- Expertise: Organic semiconductors & photovoltaics



Prof. dr. dr. Danny Vanpoucke

- Responsible IMO-Quantum & artificial intelligence design of materials
- Tenure track assistant professor chemistry
- Expertise: Computational materials research (for e.g. energy materials)

CONTACT