

The Light & Lighting Laboratory (2022 - 2023)

Youri Meuret



Our activities	With industry
1) Education	
	Training
2) Services	Measurements / Consultancy
	Projects
3) Research	

Education

Within the Faculty of Engineering Technology

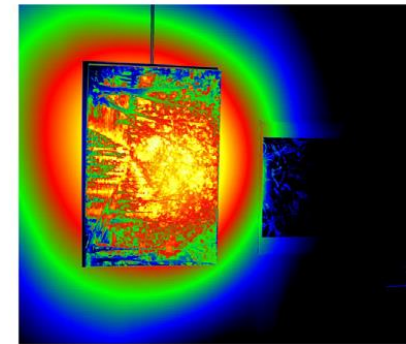
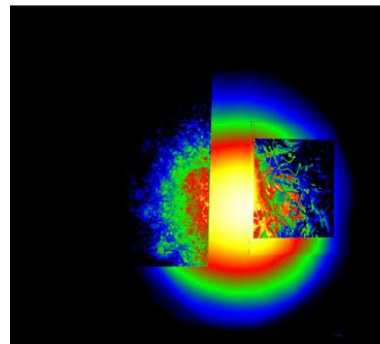
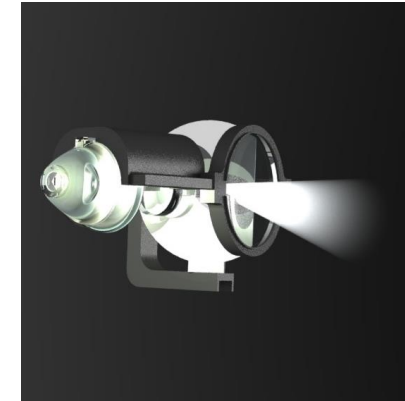
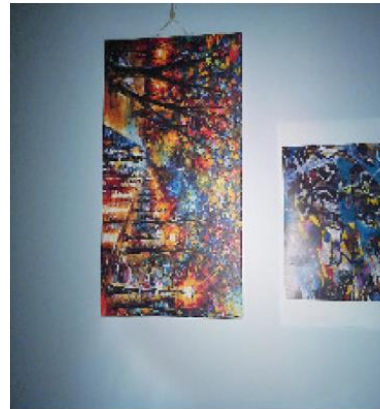


Engineering Technology (Industriële ingenieurswetenschappen)

- **Bachelor** in de industriële ingenieurswetenschappen
- Master in de industriële wetenschappen: **Energie**
- Master in de industriële wetenschappen: **Elektronica – ICT**
- Master of Science in Imaging and Light in Extended Reality (**IMLEX**)
 - Erasmus Mundus program (Finland, France, Belgium & Japan)

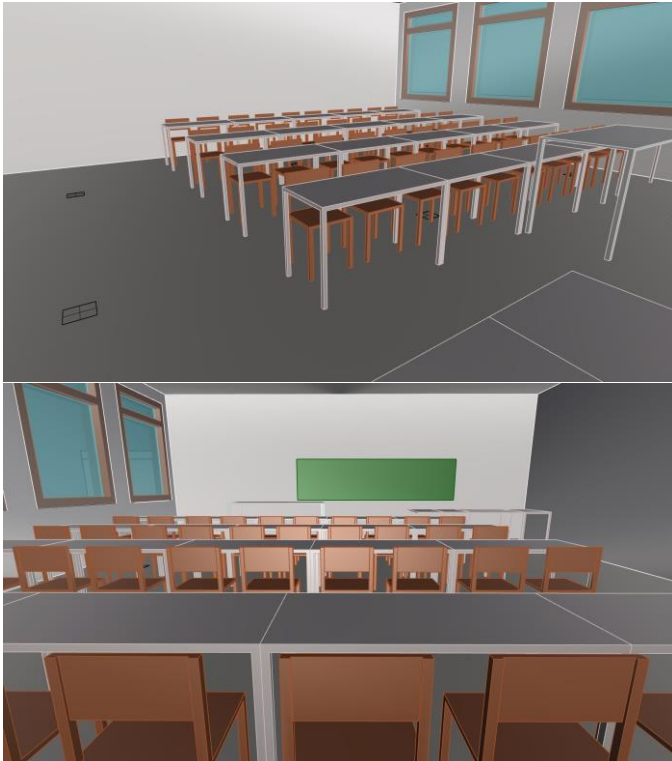
Master thesis (Electronics – ICT)

Dynamic lighting system controlled by computer vision (in collaboration with Delta Light)

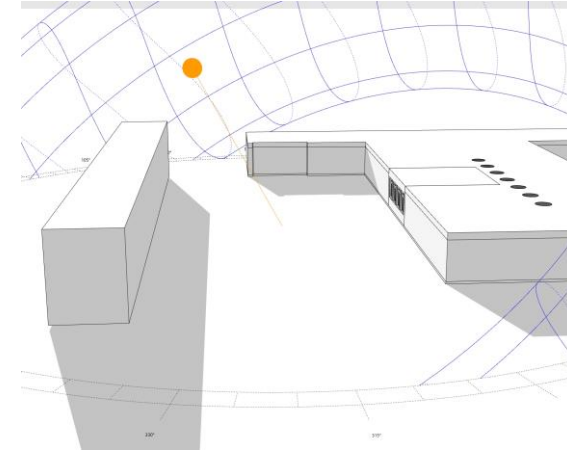


Master thesis (Energy)

Daylight simulations



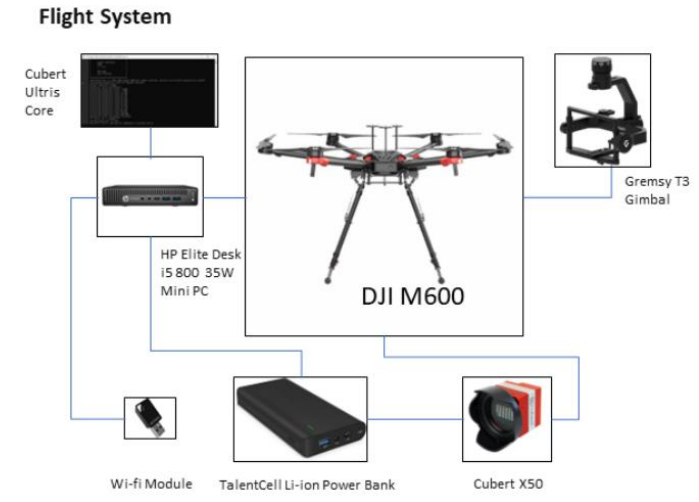
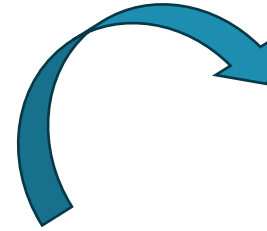
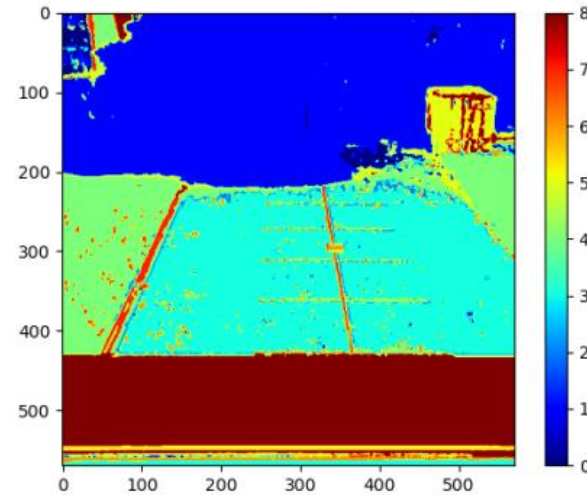
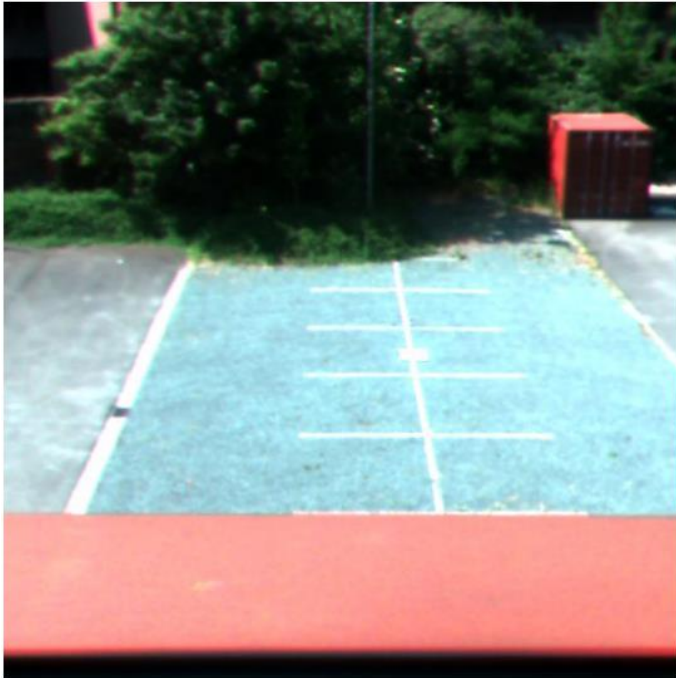
Design of physical room in Rhinoceros



Calculate the amount of daylight and the spectral properties with ALFA

Master thesis (IMLEX)

Hyperspectral imaging



Interested in proposing a master thesis topic to our students ?

Contact : youri.meuret@kuleuven.be

Training – Specialization course in lighting



- **2022 - 2023**

- 9th edition
- 3 modules – 100 hours spread over 2 semesters, on average 2x/month on Monday AM
 - Module 1: **BASICS (9 SESSIONS – 43U)**
 - Module 2: **LIGHTING DESIGN (9 SESSIONS – 43 U)**
 - Module 3: **ASIGNMENT (15 u)**
 - **OPTIONAL: EXAM TO OBTAIN KU LEUVEN CERTIFICATE “LIGHTING EXPERT”**
- 17 participants - 7 x KU Leuven certificate

- **2024**

- 10th edition
- **Starts january 2024 (until end of december)**



Additional trainings

- **NBN EN 12464-1, rev. 2021**
 - Nov '22 (online + onsite)
- **Two-day DIALux evo**
 - Nov '22, Mar '23, Jun '23
 - Max 18 participants / session
- **Conceptual Lighting Design:**
 - mar '23 i.s.m. AINB
- **Human Centric Lighting**
 - jun' 23 (online + onsite)
- **Emergency Lighting** (apr '23)

- **Not organised previous year:** DIALux evo expert, Relux basis en expert



www.groenlichtvlaanderen.be/

Opkomende activiteiten



Op 23/10/2023 in Gent:
2-daagse DIALux evo (maandag 23/10 en
06/11/2023), Gent



Op 11/12/2023 in Gent en Webinar:
Opleiding NBN EN 12464-1 (revisie 2021)
- 11/12/2023 (KU Leuven - Gent)

Research

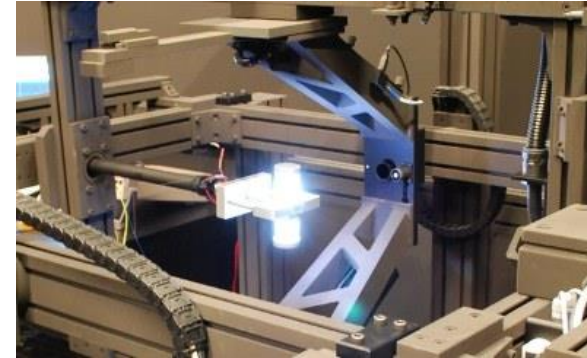
Within the Department of Electrical Engineering (ESAT)



Research topics at the Light & Lighting Laboratory



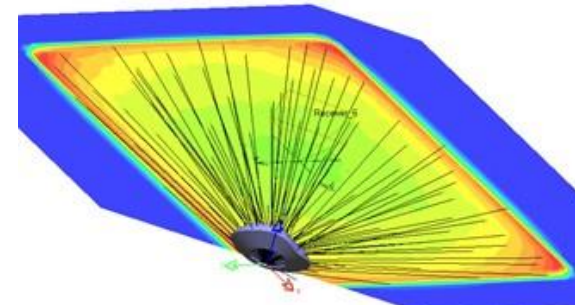
Indoor Lighting (wouter.ryckaert@kuleuven.be)



Hard & soft metrology (frederic.leloup@kuleuven.be)



Appearance & Perception (kevin.smet@kuleuven.be)



Optical Design (youri.meuret@kuleuven.be)

Research

Type

- Development
- Applied research
- Strategic basic research
- Fundamental research

Mode

- Bilateral
- With industrial partner(s)
- With industrial user committee
- PhD and postdoc scholarships
- Research consortium
- ...

Funding

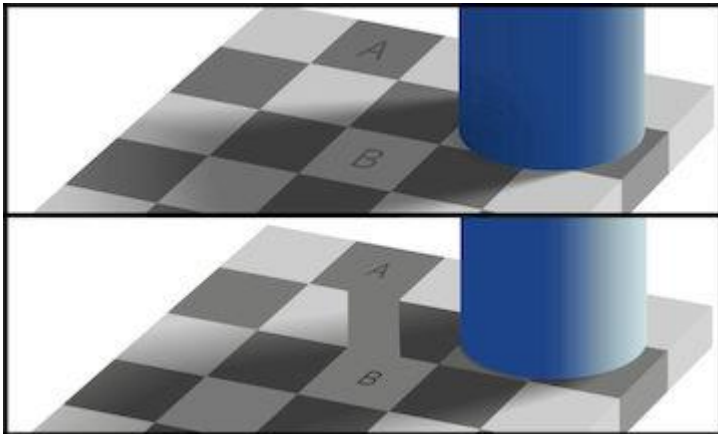
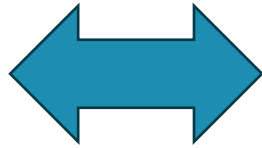
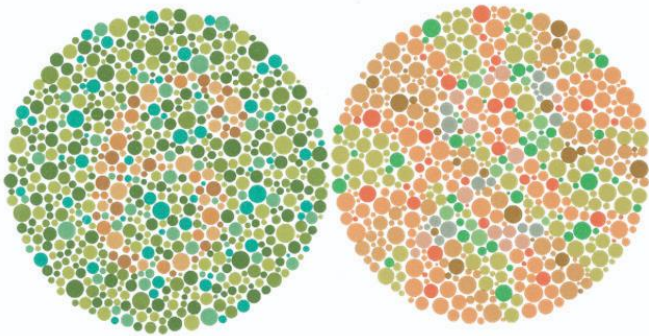
- Company funded
- VLAIO
- FWO
- Belspo
- Horizon2020
- Interreg
- ...

Ongoing:

Name : Perception of light and color in real and virtual environments.

Type : Fundamental research

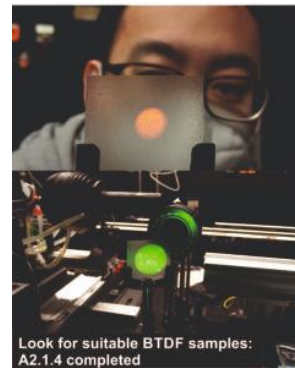
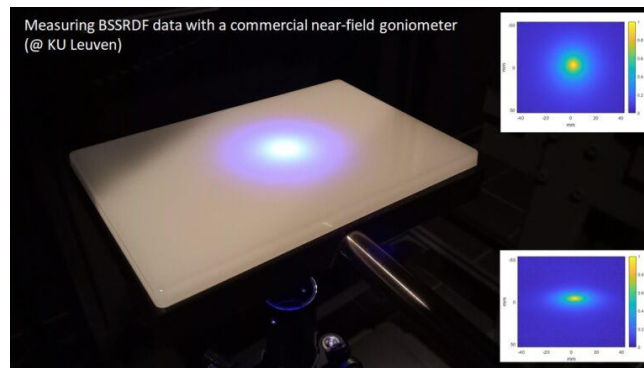
Funds : FWO



Finished:

Name : New quantities for the measurement of appearance (BxDIFF)
Type : Multipartner research project with NMI's
Funds : EURAMET

Achievements:

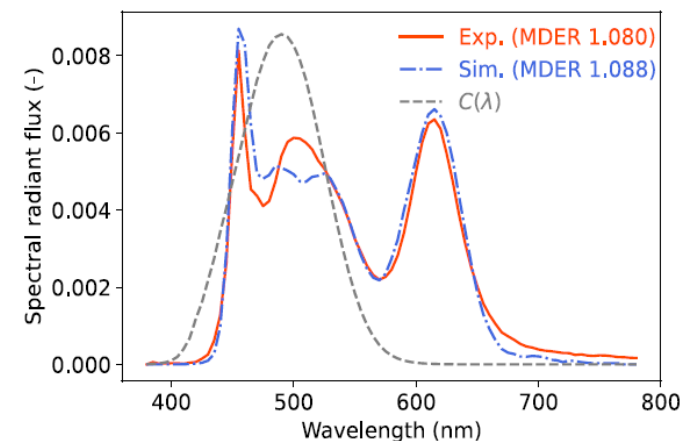
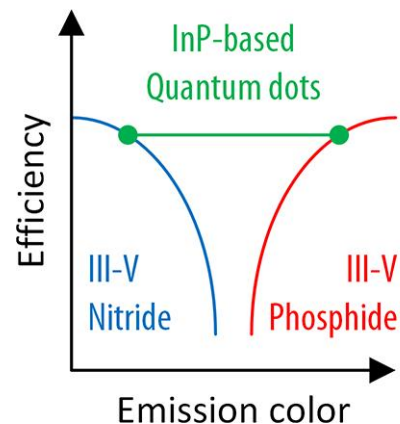
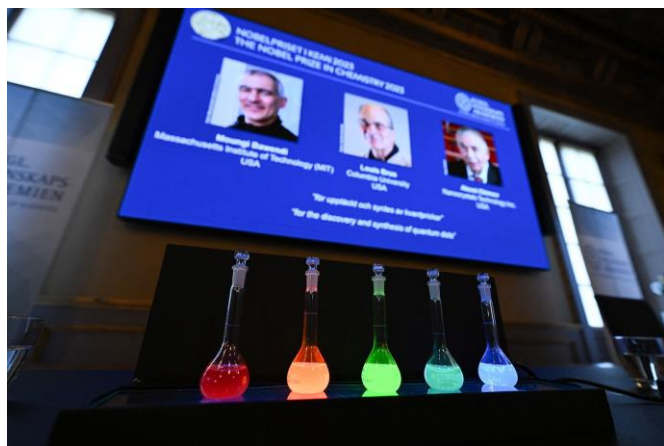


- *Metrological traceability of the BRDF from micrometre to centimetre scale*
- *Primary reference facilities and standard artefacts for BTDF*
- *Primary reference facilities and standard artefacts for BSSRDF*
- *Use and development of models for BRDF, BTDF and BSSRDF*



Finished:

Name : Quantum Dots for On Chip Luminescent Downconversion (QDOCCO)
Type : Strategic Basic Research (+ Industrial user committee)
Funds : SIM / VLAIO



Achievements:

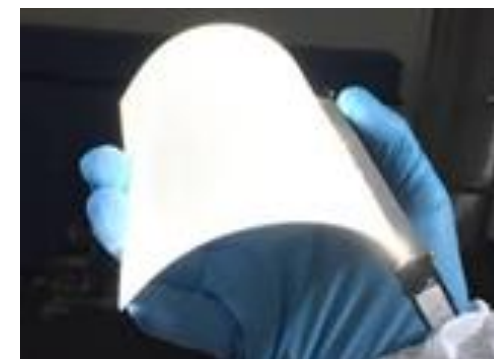
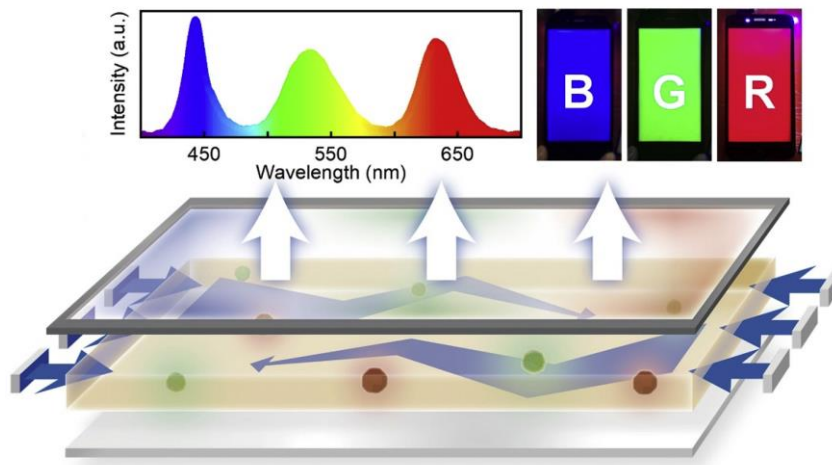
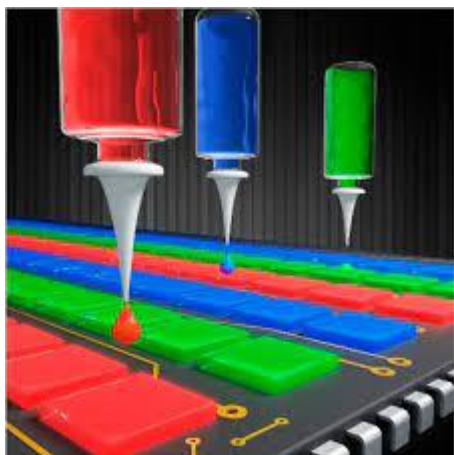
- *Single-color quantum-dot LEDs with +50% conversion efficiency*
- *White LEDs with optimal luminous efficacy and color rendering*
- *White LEDs with high/low melanopic flux (and high efficacy / Rf)*

Started:

Name : NAPOLY

Type : Strategic Basic Research (+ Industrial user committee)

Funds : SIM / VLAIO



Target:

Printing of quantum dots on rigid lightguides, flexible foils, micro-LEDs and ...

Finished:

Name : Smart Automotive Soft Skin (SASS)

Type : ICON project (Together with Ascorium / Quad / Connect and UGent)

Funds : IMEC / VLAIO



Finished :

Name : Indoor controlled and directed multi-layer cultivation of strawberries
Type : O&O project in collaboration with Colruyt Group
Funds : VLAIO



© Colruyt Group

- Achievements:**
- *Development of a new lighting concept for vertical farm applications*
 - *Patented technology and optics - COOLGROW® VF*

Ongoing :

Name : HCL - Woonzorgcentrum

Type : Doctoral research

Funds : Internal + investment residential care center

- **Main targets** :

- Improve lighting conditions
 - Increase melanopic EDI at eye level in the morning
 - More light during the day
 - Improved visual comfort of living area
- Reduce sleeping issues
 - E.g.: nighttime wandering
- Reduce agitation and depression
- Improve working conditions healthcare staff



Ongoing :

Name : Groen Licht Vlaanderen

Type : -

Funds : Membership fees



- Bridge and interaction between university and the professional field
- 88 members: Enterprises, Knowledge centres, Associations
- Catherine Lootens: connecting the consortium and stakeholders, go-between government, sector representation, publications in specialised press
- Continuity
- Collective
 - Collective projects
 - Neutral tailor-made courses for the sector
 - Neutral sector representation (government, other associations such as architects,...)
 - ...
- Exclusive members-only basic support (for free): 'Ad hoc' questions, connecting with other companies, lectures on demand, ...
- Member Discounts for measurements, courses, publications, events, ...

Interested in a certain research topic ?

- Via a bilateral co-operation ?
- As a research partner ?
- To follow-up on the state-of-the-art ?
- ...

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