

# European Training Network on Electromagnetic Risks in Medical Technology

## Deliverable: D.5.1– ETERNITY Kick-Off Meeting

Start date of the project: 1<sup>st</sup> March 2021

Duration: 48 months

**Deliverable: summary Kick-off meeting**

The aim of this document is to provide an overview on the ETERNITY Kick-off meeting held on 11<sup>th</sup> 12<sup>th</sup> October 2021 at TU/e campus.

### **D5.1. – ETERNITY Kick-off meeting**

Due date of deliverable: M7 (officially postpone to M8)

Organization name of lead contractor for this deliverable: TU/e

Main author(s): TU/e

Validated by: KUL and UPC

Version number: v.Final

Submission Date: 31.10.2021

|                      |        |
|----------------------|--------|
| Type:                | Other  |
| Dissemination Level: | Public |

**Revision history**

| Revision | Date       | Description  | Author (Organization)                             |
|----------|------------|--|---|
| V0.1     | 20/10/2021 | Table of content + complete draft of the deliverable | Lisa (TU/e)                                       |
| V0.2     | 21/10/2021 | Input  | Anne Roc'h (TU/e)                                 |
| V0.3     | 27/10/2021 | Input  | Davy Pissoort (Ku Leuven) and Marco Azpúrua (UPC) |



### Acronyms

|    |                                     |
|----|-------------------------------------|
| EC | European Commission                 |
| PO | Project Officer European Commission |
| CA | Consortium Agreement                |
| GA | Grant Agreement                     |

### Beneficiaries' short names

|       |                                       |
|-------|---------------------------------------|
| TU/e  | Technische Universiteit Eindhoven     |
| UT    | Universiteit Twente                   |
| PMS   | Philips Medical System Nederland B.V. |
| KUL   | Katholieke Universiteit Leuven        |
| UPC   | Universitat Politècnica de Catalunya  |
| IDNEO | Idneo Technologies SAU                |
| PLUX  | Plux -Wireless Biosignals S.A.        |

### Partner Organizations' short names

|         |                                      |
|---------|--------------------------------------|
| PMC     | Plasmacure                           |
| UMCU    | Universitair Medisch Centrum Utrecht |
| EUF     | Eurofins                             |
| BARCO   | Barco                                |
| MST     | Medisch Spectrum Centrum             |
| ASEPEYO | Asepeyo hospital                     |



## Table of Contents

|                     |   |
|---------------------|---|
| 1. Preface.....     | 5 |
| 2. Conclusion ..... | 7 |
| 3. Annex 1.....     | 8 |





## 1. Preface

This deliverable describes ETERNITY Kick-off meeting held on 11<sup>th</sup> 12<sup>th</sup> October 2021.

The description starts with the agenda, sharply commented, followed by the Annex 1.

Annex 1 is made of presentations introduced on 11<sup>th</sup> October, two documents describing the trainings, held on 12<sup>th</sup> October, and a nice picture with all the attendees participating in person (taken in Zwarte Doos Filmzaal on 11<sup>th</sup> October).

### Agenda 11<sup>th</sup> October 2021

|              |   |   |
|--------------|---|---|
| <b>12:00</b> | <b>Welcome and Lunch (Restaurant)</b>   |   |
| <b>13:30</b> | Welcome (Filmzaal) (15 min)   | Anne/ Lisa, Guus Pemen (Chair of Electrical Energy System Group) and Bart Smolders (Dean of the Department of Electrical Engineering) |
| <b>13:45</b> | <i>"Tour des Pays"</i> : who is who <ul style="list-style-type: none"> <li>• ESRs (names)</li> <li>• Beneficiaries (2 min. for each beneficiary)</li> <li>• Partner organizations (2min. for each partner)</li> </ul> | Everyone  |
| <b>14:20</b> | Project introduction (30 min) <ul style="list-style-type: none"> <li>• Timeline ETERNITY project (Gantt Chart)</li> <li>• "Brief information" about the Project</li> </ul>  | Anne  |
| <b>14:50</b> | <b>Break</b>  |   |
| <b>15:10</b> | ESRs' short introduction (5 min. max for each ESR 2 slides ppt max)   | ESRs  |
| <b>16:25</b> | Q&A   | Everyone  |
| <b>16:55</b> | <b>Move toward innovation space</b>   |   |
| <b>17:15</b> | Innovation Space's visit (about 45 min.)  | Alfons Bruekers   |
| <b>18:00</b> | <b>End of day 1 ("<i>Verre de l'amitié</i>" and dinner)</b>   |   |

### Attendees

#### Beneficiaries:

Anne Roc'h, Lisa Seravalle and Sander Bronkers **for TU/e**, Frank Leferink and Robert Vogt **for UT**, Davy Pissoort, Tim Claeys, and Dries Vanoost (online) **for KUL**, Mireya Fernandez, Ferran Silva, Marc Pous, Marcos Quilez, and Marco Azpúrua **for UPC**, Rob Kleihorst **for PMS**, Jordi Vila (online) and Noelia Rodriguez (online) **for IDNEO**, Pedro Duque Silva Reis and Hugo Silva (online) **for PLUX**.

#### Partner Organisations:

Ronny Deseine **for BARCO**, Hugo Gamboa **for FCT**, Bärbel van den Berg **for MST** and Javier Anies (online) **for ASEPEYO**.

#### ESRs:

ESR1 Marc Kopf, ESR2 Ukiwo Anya, ESR3 Miriam Gonzalez, ESR4 Lukasz Guziczak, ESR5 Asif Ali, ESR6 Mohammad Kameli, ESR8 Nathalia Batista, ESR9 Xinting Xue (online), ESR10 Simón Rendón, ESR11 Nandun Senevirathna, ESR12 Geon George Bastian, ESR13 Tiago Nunes, ESR14 Vikas Ghatge (online)



**Guests:**

Bart Smolders (Dean of the Department of Electrical Engineering), Guus Pemen (Chair of Electrical Energy System Group, Vice-Dean of the Department of Electrical Engineering) and Ioannis Bitsios (PO of Eternity at the European Commission)

**Absents:**

partners organizations: EUF, PMC and UMCU.

The meeting, held in hybrid form, was a success with a high number of participants.

IDNEO, FCT and ASEPEYO FCT and ESR9 and ESR14 attended online, the rest of the attendees participated in person.

Due to a technical setback people attending online could not show their presentations. As a result, the consortium, upon the coordinator's proposition, proposed to postpone these presentations for the coming NWE1. The meeting started with welcome speeches. The first was made by the project coordinator Anne Roc'h and ETERNITY project manager Lisa Seravalle, the second and the third by representatives of TU/e, Bart Smolders and Guus Pemen.

The fourth speech, not in the agenda but informally communicated to the attendees, was made by the project officer Ioannis Bitsios (online).

All the presentations (including those that have not been showed) were shared with the beneficiaries on the OneDrive folder called "ETERNITY general information\Eternity meetings and SB and MT representatives".

The meeting and visit to Innovation Space and following social events were carried out in compliance with the timing set out in the agenda.

During the dinner the ESRs elected Marc Kopf as their representative for the SB (year 2021-2022).

**Agenda 12<sup>th</sup> October 2021****Training activity for ESRs**

|              |   |
|--------------|---|
| <b>9:00</b>  | <b>Welcome with coffee in Luna building</b> |
| <b>9:30</b>  | Training                                    |
| <b>17:00</b> | <b>End of day 2</b>                         |

**Attendees ESRs:**

All 13 ESRs (ESR9 and ESR14 online only)

The purpose of the training was to support ESRs to get to know each other, providing useful tools for their career (see Annex 1 third last slide).

All the 13 ESRs participated actively the training (ESR9 and ESR14 online).

**Agenda 12th October 2021****Training activity for Supervisors**

|              |  |
|--------------|--|
| <b>9:10</b>  | <b>Welcome with coffee in Zwarte Doos building</b> |
| <b>9:30</b>  | Training for supervisors                           |
| <b>12:00</b> | <b>Break</b>                                       |
| <b>12:30</b> | <b>Lunch</b> in Zwarte Doos restaurant             |

**Attendees Supervisors:**

Anne Roc'h Sander Bronckers, Vogt-Ardatjew, Rob Kleihorst, Davy Pissoort, Tim Claeys, Mireya Fernandez, Marc Pous, Marco Azpúrua, Marco Quilez, Noelia Rodríguez Pedro Duque Noelia Rodríguez, Frank Leferink, Silvia Reis and Hugo Gamboa (online).

**Absents:**

Mark van Helvoort, Ferran Silva.



The training was an InterVision on Good Practices on Supervising PhD researchers (see Annex 1 penultimate slide).

## 2. Conclusion

This deliverable provides a detailed overview of ETERNITY kick-off event.

This meeting was a real success. All the guests were able to get to know each other better in a friendly environment and explored how to collaborate for the first time in small projects thanks to the trainings. These were informative and entertaining, the right formula to keep high participants' attention.

The active participation of the project officer was highly appreciated by all participants. The ESRs met him in his role, and the consortium partners were able to listen to his advice to make sure that the project will be run in compliance with the MSCA ITN rules.



### 3. Annex 1

# EUROPEAN TRAINING NETWORK ON ELECTROMAGNETIC RISKS IN MEDICAL TECHNOLOGY

FROM CARE TO PREVENTION  
 QUALITY OF CARE  
 SAFE TRAVEL

## Welcome speeches

- Anne Roc'h
- Lisa Seravalle
- Bart Smolders (Dean of the Department of Electrical Engineering)
- Guus Pemen (Chair of Electrical Energy System Group)
- Ioannis Bitsios (ETERNITY Project Officer)

## Electrical Energy Systems (EES)

“Transforming electricity grids towards a future-proof, sustainable energy supply”.

|  |  |                           |                            |
|--|--|---------------------------|----------------------------|
| <p><b>Decentralization</b></p>   | <p><b>Electrification</b></p>  | <p><b>New markets</b></p> | <p><b>Digitization</b></p> |
| <p><b>Intelligent energy systems</b></p> <ul style="list-style-type: none"> <li>- Digital power and energy systems (DigiPES)</li> <li>- AI in power and energy systems</li> <li>- Smart planning and operation</li> <li>- Electricity markets and power system optimization (EMPSO lab)</li> <li>- Monitoring and diagnostics of components</li> </ul> | <p><b>Power conversion</b></p> <ul style="list-style-type: none"> <li>- (MV) Power electronics</li> <li>- Pulsed power and transient plasma</li> <li>- Power quality and electromagnetic compatibility</li> <li>- High-voltage technology</li> </ul> |                           |                            |

|  |  |  |   |
|--|--|--|---|
| <p>Complexity in smart power systems<br/>Transactive energy<br/>Prof. dr. Koen Kok</p>       | <p>Monitoring and diagnostics of components<br/>High-voltage technology<br/>Dr. Peter Wouters</p>        | <p>Smart grids<br/>Smart planning and operation<br/>Prof. dr. Han Slootweg (Enexis)</p>        | <p>Smart planning and operation Protection<br/>Dr. Johan Marren (Enexis)</p>  |
| <p>Digital power and energy systems (DigiPES)<br/>Dr. Phuong Nguyen</p>                      | <p>AI in power &amp; energy systems<br/>Optimization and electricity markets<br/>Dr. Nikos Paterakis</p> | <p>Reliability and diagnostics of grid components<br/>Prof. dr. Peter van der Wielen (DNV)</p> | <p>Smart planning and operation<br/>Ir. Wouter van den Akker (Alliander)</p>  |
| <p>(MV) Power electronics<br/>Dr. Dongsheng Yang</p>   | <p>Pulsed power technology<br/>Dr. Tam Huiskamp</p>  | <p>Smart planning and operation<br/>Ir. Anne van der Molen (Stedin)</p>                        | <p>Intelligent energy systems<br/>Prof. dr. Bert Claessens (Centrica)</p>     |
| <p>Pulsed power technology<br/>Transient plasma<br/>Group chair<br/>Prof. dr. Guus Pemen</p> | <p>Pulsed power and plasma driven electrification<br/>Dr. Wilfred Haeben</p>                             | <p>Power quality<br/>Prof. dr. Sef Cobben (Alliander)</p>                                      | <p>Power quality in transmission systems<br/>Dr. Jeroen van Waes (TenneT)</p> |
| <p>Power quality<br/>Dr. Vladimir Cuk</p>  | <p>Electromagnetic compatibility (EMC)<br/>Dr. Anne Roc'he</p>   | <p>Power electronics dominated grids<br/>Dr. Erik de Jong (Kema)</p>                           | <p>Power electronics<br/>Prof. Korneel Wijnands (Pradrive)</p>                |
| <p>Electromagnetic compatibility (EMC)<br/>Dr. Ramiro Serra</p>                              | <p>Account and valorization management<br/>Erik Matien</p>   | <p>Technician<br/>Annie Koonen van Reemst</p>  | <p>Technician<br/>Marcel Hoogerman</p>  |
| <p>Education<br/>Ing. Rene van Hoppe</p>   | <p>Lab management<br/>Dr. Tiago Castelo de Oliveira</p>  | <p>Technician<br/>Eloy Maxam Martinez</p>  | <p>Secretariat<br/>Annemarie van de Moesdijk</p>                              |
|  |  | <p>Project manager<br/>Lisa Seravalle</p>  |   |

Key figures (2019):

- 41 PhD-candidates and postdocs
- 28 scientists, engineers and staff
- 35 MSc students

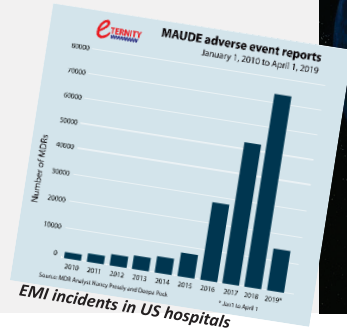
Intelligent energy systems

Power conversion



A **sustainable** society is an **electrical** society

Welcome at **EES**



## H2020 Marie Skłodowska-Curie Actions

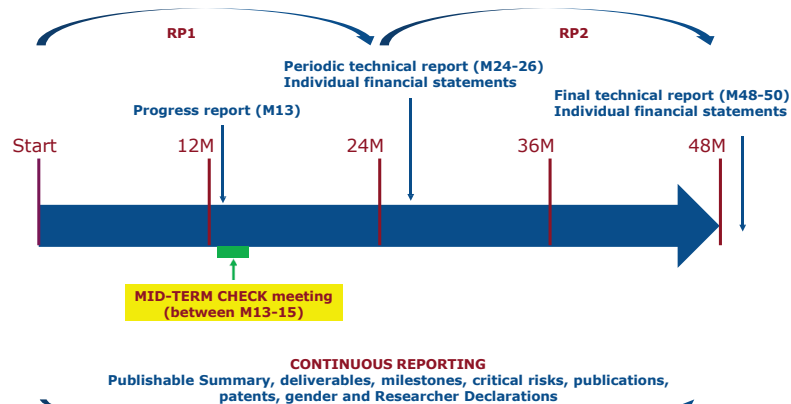
**955816 ETERNITY (ETN)**  
Kick-off meeting

**Ioannis BITSIOS**  
(Principal Administrator at European Research Executive Agency - REA)

(remote via MS Teams)  
11 October 2021



### Project timeline



### Project timeline



#### Monitoring Project Implementation

✓Continuous reporting: starts as soon as the GA is signed and the start date of the project is due, the 'continuous reporting' module is available. Continuously update publishable summary, deliverables, milestones, Researcher's Declarations etc. and allows the REA to monitor the project.

A MID-TERM CHECK meeting is organized to assess the project after one year (M13-15).

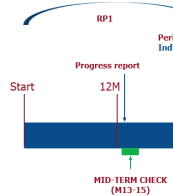
✓Periodic reporting: at the end of each reporting period, the coordinator has 60 days to submit a periodic/final report (Art. 20 of the GA).





Done without expert.

## Mid-Term check (Article 19.1 of the GA)



- The coordinator must organize a mid-term meeting at M13-15.
- A Progress report needs to be submitted beforehand as deliverable via the continuous reporting module,
- Brings together EU officer, consortium members and recruited researchers.

The objective of the meeting will be to:

- ✓ Assess the recruitment progress and procedure.
- ✓ Clarify the eligibility rules for fellows.
- ✓ Raise awareness on the rights and obligations of fellows and beneficiaries.
- ✓ Assess any deviation of the original training programme.
- ✓ Define contingency plans if necessary.

## Researcher Declaration



The screenshot shows a web interface for 'New Researcher Declaration'. It has three tabs: 'Researcher Information', 'Recruitment Information', and 'Recruitment Period'. The 'Recruitment Period' tab is active, showing three recruitment periods. For each period, there are fields for 'Start Date', 'End Date', and 'Working Time Commitment'. A dropdown menu is open for the 'Working Time Commitment' of the first period, showing options: 'Full Time', 'Suspension', 'Part Time', 'Maternity Leave', and 'Parental Leave'. A callout box on the right lists the following options: Full Time (100%), Suspension (0%), Part time (1 - 99%), Maternity Leave (0%), and Parental Leave (0%).

## IFS



### Individual financial statement

**Fellow's name:** Automatically filled in from Researcher Declarations

**Number of units:** Automatically filled in from Researcher Declarations

**Total amount:** Automatically filled in based on unit costs

The screenshot shows a complex table for the Individual Financial Statement (IFS). Yellow callout boxes point to specific fields: 'Fellow's name' points to the 'Name of the fellow' column, 'Number of units' points to the 'Number of units' column, and 'Total amount' points to the 'Total (€)' column. The table has multiple columns for different cost categories and a 'Total' row at the bottom.

Checkboxes: Confirm that the total amount of the allowances used (excluding compulsory deductions) for the researcher is equal to or higher than the living allowance, the mobility allowance and the family allowance (as set out in Annex 2 of the Agreement or any subsequent Reporting Periods). It will be corrected by the end of the action.

**All information is retrieved from Researcher Declarations (RDs) Corrections to be made only in RDs**

\*\*\* See Article 4 for conditions for costs to be eligible  
 \*\* This is the theoretical amount of EU contribution if the reimbursement rate is applied to all of the budgeted costs. The theoretical amount of EU contribution for the action is capped by the maximum grant amount.  
 \*\*\*\* See Article 5 for forms of costs  
 \*\*\*\*\* Total - Costs per unit - Number of units (researcher months)  
 \*\*\*\*\* Name of the researcher and related units for living (A.1) and family (A.2) allowances will be prefilled on the basis of the information provided by the beneficiary in the 'researcher declaration'

## Exchange rate



- Financial statements are calculated in euro.
- Beneficiaries using another currency must convert the costs into euro at the average of the daily exchange rates published in the Official Journal of the European Union, calculated over the corresponding reporting period.
- Monthly allowances for the recruited researchers can be calculated using a conservative exchange rate, if a corrective payment is then made (to the researchers) immediately after the end of the reporting period. This must be clearly explained in the employment contract/equivalent direct contract.

<http://www.ecb.europa.eu/stats/exchange/eurofxref/html/index.en.html>



## Types of costs

### A. Costs for recruited researchers

| Marie Skłodowska-Curie Action | Researcher unit cost person/month |                    |                  | Institutional unit cost person/month    |                               |
|-------------------------------|-----------------------------------|--------------------|------------------|---|-------------------------------|
|                               | Living allowance*                 | Mobility allowance | Family allowance | Research, training and networking costs | Management and indirect costs |
| Innovative Training Networks  | 3270                              | 600                | 500              | 1 800                                   | 1 200                         |

### B. Institutional costs (their eligibility is linked to the eligibility of the researchers)

1. Research, training and networking costs
2. Management and indirect costs

#### Sick leave:

- For short term leave ( $\leq 30$  days) a full unit is eligible;
- Periods in which a researcher was absent for more than 30 consecutive days (for reasons other than normal annual leave), costs CANNOT be charged to the action (and must be removed from the financial statement, by changing the researcher declaration).

1 unit  
=  
1 month of  
eligible ESR

## B1. Research, training and networking costs



### How much?

Fixed amount of EUR 1 800 per implemented person-month

### What is it used for?

- Research costs
- Training courses
- Participation of researchers in training events and conferences
- Secondments (including travel and accommodation)
- Co-ordination between participants
- Visa costs for recruited fellows
- Tuition fees (if any): *MSCA-ITN researchers may NOT be requested to pay tuition (enrollment etc) fees for their research training and/or PhD degree programme from their own funds.*



The use of institutional costs is decided by the beneficiary

### How is it distributed between the beneficiaries?

- Calculated according to the person-months implemented per beneficiary
- The full amount must be reported by the beneficiary recruiting the fellow
- The consortium can agree to distribute it differently, in which case it should be addressed in the consortium agreement, but not in the reports

## B2. Management and indirect costs



### How much?

- Fixed amount of EUR 1 200 per implemented person-month

### How it is split between management and overheads?

- Split between management and overheads decided by beneficiaries
- Ensure enough budget is allocated to implement the management tasks described in the Annex 1

### How is it distributed between the beneficiaries?

- It is a decision of the consortium. Usually the coordinator retains the largest share of the management costs (e.g. for hiring a project manager). The distribution should be addressed in the consortium agreement





### What is it used for?

- Costs associated with the preparation of the reports and other documents required by the EREA:
  - Researcher declarations, deliverables, ethics, progress report, periodic and final reports
- Personnel costs of the Project Manager
- Maintenance of the consortium agreement
- The overall legal, ethical, financial and administrative management for each of the beneficiaries
- Indirect costs of the action

## Roles



### Role of the Coordinator

- Article 41.2b of the GA
  - Monitor that the action is implemented properly
  - Act as intermediary for all communication between consortium and the EREA
  - Request and review any document or information required by the EREA
  - Submit the deliverables and reports to the EREA
  - Ensure that all payments to other beneficiaries are made without unjustified delay
  - Inform the EREA of the amounts paid to each beneficiary

*Coordinator cannot delegate these tasks to any other beneficiary or subcontract them to a third party*

## Roles



### Role of the Beneficiaries

- Article 41.2a of the GA
  - Keep the Beneficiary Register up to date
  - Inform the coordinator of events likely to affect the implementation of the project
  - Submit to the coordinator in good time
    - Individual financial statements
    - Data needed to draw up the technical reports
    - Ethics committee opinions/notifications/authorizations for activities raising ethics issues
    - Any other document required by the EREA

*Beneficiaries are jointly liable for the technical implementation of the action.*

*Beneficiaries have individual responsibility for their own financial statement.*

## Complaints



- *Your project should have a complaints procedure in place and it should be clear to whom one should refer to in case of complaints (following the European Charter and Code for Researchers).*
- *In case of concerns from the ESRs regarding their research, they can voice them clearly and in time to their employer (for example to their supervisor), or possibly to the National Contact Point in the country where they are recruited.*
- *If you cannot resolve the issue with your recruiting organization, please then contact the organization coordinating the project, if this is different to your employer. Only in the exceptional cases where problems remain after this dialogue should you inform the relevant Project Officer at the European Research Executive Agency (EREA) of the European Commission. The coordinator of your project will have the contact details. However, please raise the matter first with your employer or project coordinator (if applicable), before contacting the EREA.*
- *In all cases, please bear in mind that the EREA has no contractual relations with the individual researchers selected and recruited by the beneficiaries.*
- *The researcher's employment contract and its terms and conditions remain therefore subject, in the first place, to the national labour law (in the country where they are recruited).*

## Links

### Documents/Info

- Funding & tender opportunities - Single Electronic Data Interchange Area (SEDIA)  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>
- Funding & tender opportunities – H2020 Online Manual  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/manuals>
- Marie Skłodowska-Curie Actions – ITN  
[http://ec.europa.eu/research/mariecurieactions/actions/research-networks\\_en](http://ec.europa.eu/research/mariecurieactions/actions/research-networks_en)
- Marie Skłodowska-Curie Actions Work Programme 2018-20  
[http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-msca\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-msca_en.pdf)
- FAQs on COVID19-related aspects  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/faq;grantAndTendertype=1;categories=:programme=H2020;actions=:keyword=COVID-19%20outbreak;period=2014-2020>
- Guide for Applicants ITN  
[http://ec.europa.eu/research/participants/data/ref/h2020/other/guides\\_for\\_applicants/h2020-guide-appl-msca-itn\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/guides_for_applicants/h2020-guide-appl-msca-itn_en.pdf)



## Links

- Euraxess Portal:  
<http://ec.europa.eu/euraxess/>
- Register as an expert (for PIs):  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/work-as-an-expert>
- Register to Marie Curie Alumni Platform (for MC fellows):  
<https://www.mariecuriealumni.eu>
- Information Package for MSCA fellows (rights and obligations):  
[https://ec.europa.eu/research/mariecurieactions/sites/default/files/information\\_note\\_msca\\_v.3.pdf](https://ec.europa.eu/research/mariecurieactions/sites/default/files/information_note_msca_v.3.pdf)



\*Annex I to the Grant Agreement (DoA) as well as all project relevant documents to be circulated to all recruited ESRS



## Links

- Continuous Reporting  
[http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/reports/continuous-report\\_en.htm](http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/reports/continuous-report_en.htm)
- Grant Management System (How To)  
<https://webgate.ec.europa.eu/funding/display/ECResearchGMS/1.+Grant+Management+Services+tool>



### 1. Grant Management Services tool

| Table of Contents:                                 |  |
|--|--|
| Expand all Collapse all                            |  |
| 1. Grant Management Services tool                  |  |
| 1.1. General Concepts                              |  |
| 2. Navigation                                      |  |
| 2.1. Navigation video                              |  |
| 3. How to access your documents                    |  |
| 4. How to access your messages                     |  |
| 5. Notifications                                   |  |
| 5.1. External Notifications                        |  |
| 5.2. How to manage your notifications              |  |
| 5.3. Overview of notifications                     |  |
| 5.4. Internal Notification - EU Services initiated |  |
| 6. Business processes                              |  |
| 6.1. Proposal Management and Grant Preparation     |  |
| 6.2. Summary on editable screens for beneficiaries |  |
| 6.3. The drag & drop feature                       |  |
| 6.4. Grant Agreement Preparation termination       |  |
| 6.5. Work packages and deliverables                |  |
| 6.6. Amendments                                    |  |
| 6.7. Consortium Requested Amendments               |  |
| 6.8. EU Initiated Amendments                       |  |
| 6.9. Reporting and payments                        |  |
| 6.10. Performance Measurement                      |  |

### Introduction

The precondition for reporting is the signature of the Grant Agreement by the Coordinator and the Beneficiary. There are two types of reporting in the Grant Management System in the Funding & Tender Portal:

- **Continuous Reporting** available from the beginning of a project collaboratively at all beneficiary
- **Periodic Reporting** available at the end of a reporting period

The reporting process consists of several phases:

1. Logging in to the Funding & Tender Portal when you have received a notification.
2. Completing the tabs available in continuous reporting.
3. Each time a periodic report is submitted to the EU, a snapshot is taken from the data as the periodic report.

### Process description and steps

The general concepts of the Grant Management Services system also apply to the reporting process.

**Step 1: All beneficiaries receive a notification and log on to the FT**  
At the beginning of each project, all beneficiaries will receive a notification to continue to the event collaboratively.

To fill in the information the beneficiary must log on to the Funding & Tender Portal and access the

**Step 2: All beneficiaries complete their own data as soon as they a**  
The template for reporting can be found in the reference documents section on the Funding & Tender Portal for the periodic reports.

The tabs currently in production are the following (the other tabs will be added progressively):

- 1. Completing the **Summary for publication tab**
- 2. Completing the **Deliverables tab**
- 3. Completing the **Initiations tab**
- 4. Completing the **Critical Risks tab**
- 5. Completing the **Publications tab**
- 6. Completing the **Dissemination and communication activities tab**
- 7. Completing the **Transition activities tab**

### Completing the Deliverables, Ethics, IPR, Other Report tab

The Deliverables, Ethics, IPR, Other Report tab is used to report on the progress of the project.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.

Reporting on progress should be done at the end of each reporting period.



## Links

- Dissemination & Exploitation of results  
[http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/dissemination-of-results\\_en.htm](http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/dissemination-of-results_en.htm)
- European IPR Helpdesk  
<https://www.iprhelpdesk.eu/>
- Audits relevant information  
<http://ec.europa.eu/!RF87tY>
- Annotated Model Grant Agreement  
[http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/audit/h2020-iap\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/audit/h2020-iap_en.pdf)
- Annotated Model Grant Agreement  
[http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/amga/h2020-amga\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf)
- Coordinators info day website  
[https://ec.europa.eu/info/itn-2020-coordinators-info-day\\_en](https://ec.europa.eu/info/itn-2020-coordinators-info-day_en)
- Open Access & Data Management & Open Research Europe platform  
[http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/open-access\\_en.htm](http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/open-access_en.htm)
- <https://open-research-europe.ec.europa.eu/>



# Agenda

“Tour des Pays”: who is who

- ESRs (names only)
- Geography of the Consortium (Lisa 2 min.)
- Beneficiaries and Partner organizations (2min. for each Beneficiary and each Partner)
- Project introduction (Anne 30 min)
- Break
- ESRs’ short introduction (5 min. max for each ESR 2 slides ppt max, tot 1h and 5 min.)
- Q&A

**Beneficiaires**

- 1 TU/e [TU/e]
- 2 UNIVERSITY OF TWENTE. [UTwente]
- 3 PHILIPS [PHC]
- 4 KU LEUVEN [KU Leuven]
- 5 UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONADESPROFESSORS [UPC]
- 6 idneo [IDNEO]
- 7 PLUX [PLUX]
- 8 Plasmacure [PMC]

**Partner Organisations**

- 1 Plasmacure [PMC]
- 2 UMC Utrecht [UMCU]
- 3 eurofins [EUF]
- 4 ASEPEYO
- 5 FCI [FCI]
- 6 BARCO [BARCO]
- 7 MST
- 8 FACILIDADE DE CIÊNCIAS E TECNOLOGIA UNIVERSIDADE NOVA DE LISBOA

**Network-wide events**  
 Eindhoven M7(NL) - Kick off  
 Bruges M16 (BE)  
 Lisbon M25 (PT)  
 Barcelona M34 (ES)  
 Eindhoven M36 (NL)  
 Twente M42 (NL)

1-8 Beneficiaries
1-6 Partner Organisations
 Academic Participants
 Non-academic participants
 Hospital

## Tour des Pays

### The Netherlands



#### North Brabant

- Eindhoven University of Technology (TU/e)
- Philips Medical Systems Nederland B.V. (PMS)
- Plasmacure (PMC)
- Hospital Utrecht (UMCU)-more precisely Randstad-



#### Overijssel

- University of Twente (UT)
- Medisch Spectrum Twente (MST)



## Tour des Pays

### Belgium



- KATHOLIEKE UNIVERSITEIT LEUVEN ( KU Leuven)
- Eurofins (EUF)
- Barco NV (BARCO)

## Tour des Pays



### Spain

- Universitat Politècnica de Catalunya (UPC)
- Idneo Technologies S.A.U. (IDNEO)
- ASEPEYO



29



TU/e

## Tour des Pays



### Portugal

- Plux - Wireless Biosignals, S.A (PLUX)
- Universidade NOVA de Lisboa (FCT)

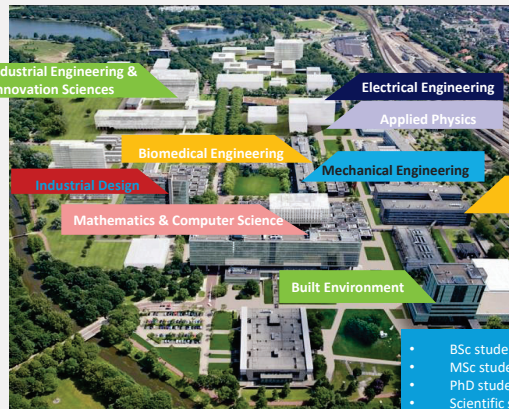


30



TU/e

## Eindhoven University of technology



**TU/e** EINDHOVEN  
UNIVERSITY OF  
TECHNOLOGY

- BSc students 7,500
- MSc students 4,000 (25% international)
- PhD students 1,200 (50% international)
- Scientific staff 2,000 (25% international)

31



TU/e

## Electrical Engineering department

1200 BSc and MSc students

80 scientific staff members

>250 PhD students

Intense cooperation with High-tech industry and research institutes (e.g. Philips, NXP, ASML, DAF, VDL, TNO, ASTRON, Prodrive, .....)

**Three Research Centers to support focus areas for applied research with industry**



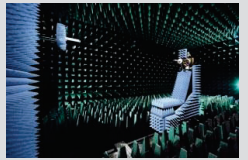
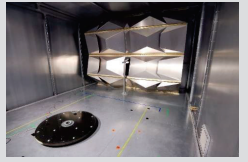
32



TU/e



## EMC team @ Eindhoven Technical University



Fully equipped EMC lab, anechoic chamber and reverberating chamber



### EMC research team in ETERNITY :

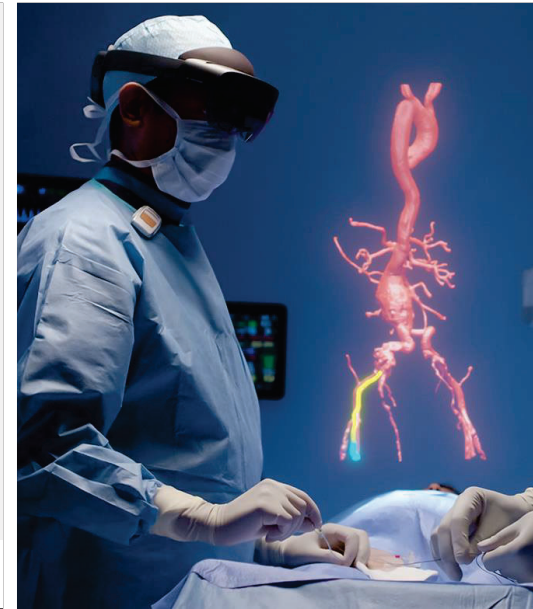
- Coordinator of Eternity: dr. ir. Anne Roc'h
- Program Manager for Eternity: Lisa Seravalle
- ESR1 (Marc Kopf)
- ESR7 (being selected)
- ESR11 (Nandun Senevirathna, *posted at Philips*)
- Project AMICABLE (hiring under process)
- Master and Bachelor students,
- EES group head: prof. dr. ir. Guus Pemen
- Co-supervisor/Advisor (part-time): dr. Sander Bronckers (EM group)



33



Coordinator



Products come and go...  
Technologies change...

But Philips is still  
about one thing:  
Creating meaningful  
innovation that improves  
people's lives



© Koninklijke Philips N.V.

Economic realities are driving the need for new approaches in healthcare



Helping our customers address the Quadruple Aim



Better health outcomes



Improved patient experience



Improved staff experience

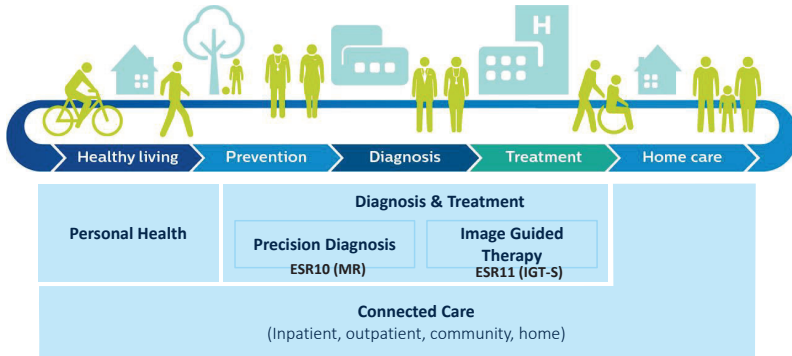


Lower cost of care



## Focused on customer needs

The health continuum is at the center of our strategy



© Koninklijke Philips N.V.

## We turn possibilities into great innovations



EUR 1.8 billion  
invested in R&D in 2020

818 new  
patents  
filed in 2020

Philips named  
**Derwent Top 100  
Global Innovator™**  
for 8<sup>th</sup> year in a row

Approximately  
**1 out of 2**  
R&D personnel in  
software and data science

**59,000**  
patents

**#1 medtech company**  
in Boston Consulting Group's 2020  
'Top 50 most innovative companies'

© Koninklijke Philips N.V.

# EMC research at the University of Twente

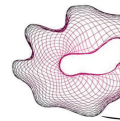
## Prof. dr. Frank Leferink

Fellow IEEE, Ridder ON

Chair EMC, University of Twente, Enschede, The Netherlands  
Honorary professor EMC, The University of Nottingham, Nottingham, United Kingdom  
Ambassador Chair KU Leuven, Belgium

Director EMC, Thales Nederland, Hengelo, The Netherlands  
Manager THALES Group Network of Excellence on EMC

Vice-Chair EMC Europe  
Member Board of Directors, IEEE EMC Society  
Associate Editor IEEE Transactions on EMC  
Associate Editor IEEE Letters on EMC Practice and Applications



## Chair EMC @ University of Twente

- ➔ Prof. dr. Frank Leferink
- ➔ Dr. Robert Vogt-Ardatjew
- ➔ Dr. Niek Moonen
- ➔ Project manager dr. Marco Raaben (SBD)
- ➔ Project Manager Jan Beerens (SBD)
- ➔ Management assistant & secretariat: Lilian Hannink
- ➔ Technician ir. Roelof Grootjans
- ➔ Students (Bachelor, Master)



# Research assistants (working towards PhD)

1. Jesper Lansink Rotgerink: Crosstalk in aerospace wiring (NLR)
2. Koos Fockens: Man Made Noise (NEDAP)
3. EU EMPIR: Bas ten Have: Smart Meter EMI, hardware
4. EU EMPIR: Tom Hartman: Smart Meter EMI, signal processing
5. Danilo Izzo: VIRC for automotive testing (Daimler)
6. H2020 MSCA SCENT: Imam Sudrajat: Parameterised macro/behavioural models for complex platforms
7. H2020 MSCA SCENT: Muhamad Wibisono: In-situ measurement and monitoring, rel. to PLC challenges
8. H2020 MSCA SCENT: Daria Nemashkalo: Large-system EMI (interaction) analysis with EM topology
9. H2020 MSCA ETOPIA: Alex Matthee: EM coexistence power electronic devices & communication systems
10. H2020 MSCA ETOPIA: Denys Pokotilov: Large-system EMI analysis – T-domain triple loop
11. H2020 MSCA PETER: Nancy Omollo: Risk-Based EMC for maritime systems (RH Marine)
12. H2020 MSCA PETER: Mumpy Das: Risk-Based EMC in hospital environments
13. H2020 MSCA PETER: Vassiliki Gkatsi: V2X communication and interference
14. H2020 EU EASIER: Leonardo Malburg: EMC in all electric aircraft
15. NWO NL-Indonesia: Ilman Sulaeman: EMC in energy access/weak grids
16. NWO NL-Indonesia: Desmon Simatupang: EMC in energy access/weak grids
17. H2020 MSCA ETUT: Ivan Struzhko
18. H2020 MSCA ETUT: Cathrine Feloups
19. H2020 MSCA ETUT: Rodica Botnarevscaia (Univ. Dnipro)
20. H2020 MSCA ETERNITY: Łukasz Guziczak
21. H2020 MSCA ETERNITY: Simon Rendon Velez (Philips)

Radiated: dr. Vogt  
 Conducted: dr. Moonen  
*Italic: not on UT payroll*

21 active PhDs  
 +8 via Joint degree

# EMC group @ University of Twente, 1

## ➔ Former PhD researchers

- ➔ 2012: dr. Anne Roc'h: EMI and Power Drive Systems
- ➔ 2013: dr. Roelof Timens: Power Quality & EMC
- ➔ 2015: dr. Alex Blaj: Lightning and composite structures
- ➔ 2015: dr. Olga Terechshenko: Embedded materials for EMC
- ➔ 2016: dr. Bart van Leersum: EMC in naval vessels
- ➔ 2016: dr. Stefan van de Beek: Intentional EMI
- ➔ 2017: dr. Robert Vogt-Ardatjew: Reverberation Chambers
- ➔ 2019: dr. Niek Moonen: Power electronics for Smart Grids
- ➔ 2020: dr. Dwi Mandaris: EMI measurement setups to generate high field strength
- ➔ 2021: dr. Cees Keyer

**Bold: Cum Laude**

**MST Medisch Spectrum Twente**  
 een santeam ziekenhuis

**528** bedden  
**26.408** klinische opnamen

**124.302** Aantal unieke patiënten

**250** Medisch specialisten  
**3.590** Medewerkers in dienst  
**8.201** Verpleegkundigen

**96** Helikopterlandingen  
**8.320** Ambulanceeritten

**education**  
**97** Artsen in opleiding tot specialist (aios)  
**60** Artsen niet in opleiding tot specialist (aniss)

• large teaching hospital  
 • top clinical care  
 • expert centers:

**16.000 med. devices**

**TU/e**



**KU Leuven – M-Group**  
 KU Leuven Bruges Campus, Belgium



## M-Group | Fast Growing Team!

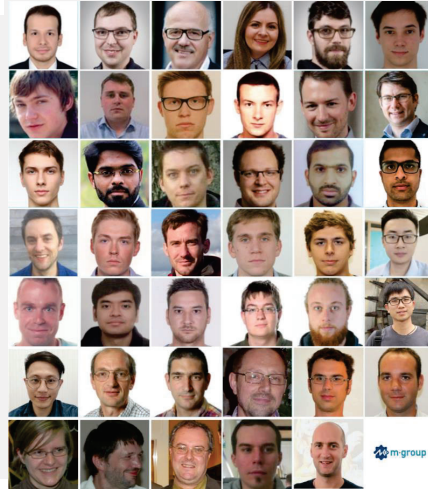


Department of  
Mechanical Engineering

Department of  
Electrical Engineering

Department of  
Computer Science

"True to the mechatronic approach"



45



## M-Group | Research Topics

System

Control/decisions under uncertainty

Safety Assurance

Software

Hardware

Middleware for adaptive  
configurability

**Electro-Magnetic  
Compatibility**

Embedded Software

Networked  
Embedded  
Systems

Structural Joining

Smart Blue Systems

Dependable Interconnected Mechatronic Systems

46



## KU Leuven ESRs in ETERNITY

ESR3: Application of system thinking and system safety to EMI risk assessment of medical applications

ESR6: EMI- Resilient Sensor and Communication Networks for complex medical systems-of-systems

ESR9: Development of EMI sensors

ESR14: Towards standardized EMC assurance case patterns for the certification of medical equipment

47



1/02/2021



# QUESTIONS?

48





**BARCO**

**ETERNITY kick-off event: Barco Introduction**

**ENTERTAINMENT**

**ENTERPRISE**

**HEALTHCARE**

**Medical display systems**  
Barco's extensive line-up of high-precision display systems brings accuracy and efficiency to a broad range of healthcare disciplines, including radiology, mammography, surgery, dentistry, pathology, point-of-care, and clinical review imaging.

**Nexxis for the operating room**  
Nexxis is Barco's video-over-IP platform for the integrated digital operating room.

**Skin imaging systems**  
Barco Dermetra is an all-in-one skin imaging platform that will change the future of dermatology and dermoscopy.

**Healthcare services**  
Professional services for the healthcare industry.

**Custom medical solutions**  
We design custom solutions from the ground up to deliver the exact performance you need.

**DfEMC Process**

**EM-Risk Management**

**PETER**

**ETERNITY**

**Pan-European Training, research and education network on ElectroMagnetic Risk management**

**ETERNITY – “European Training Network on Electromagnetic Risks in Medical Technology”**

Ronny Deseine (DF)-EMC expert

12 October 2021

**eTERNITY**

**ETERNITY – “European Training Network on Electromagnetic Risks in Medical Technology”**

**UPC**

**UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH**

**TU/e**

**Universitat Politècnica de Catalunya · BarcelonaTech (UPC)**

**Campus Nord - Barcelona**

|                 |                                   |  |                               |                             |                        |
|-----------------|-----------------------------------|--|-------------------------------|-----------------------------|------------------------|
| 28.208 students | 3,317 teaching and research staff | 2,052 administrative and service staff | 64 bachelor's degrees         | 75 master's degrees         | 45 doctoral programmes |
| 18 schools      | 241 lifelong learning programmes  | 15 patents last year                   | 294 million euros 2021 budget | 58 million euros R&D income | 62.854 alumni          |

2,210 doctoral degree students

292 doctoral theses defended 2017-2018

2,717 students in international mobility programmes

**TU/e**

**Grup de Compatibilitat Electromagnètica (GCEM-UPC)**

**Grup de Compatibilitat Electromagnètica UNIVERSITAT POLITÈCNICA DE CATALUNYA**

**GCEM-UPC** is working on Electromagnetic Compatibility since 1993

Owns a **complete** emissions and immunity **test laboratory**

**11 staff members** (7 doctors, 1 eng., 1 graduate, + students)

**+3 PhD ETERNITY project**

**Conference organisation** (EMC Europe 2006 & 2019)

Participation and leadership in national and international **research projects**

Strong **relationship with industry** (+50 project/year)

**ACCIÓ** **Generalitat de Catalunya** Government of Catalonia **Tecniospring INDUSTRY**

**EMPIR** **EURANET** **eurostars™**

**SEVENTH FRAMEWORK PROGRAMME** **GOVERNIO DE ESPAÑA** **MINISTERIO DE CIENCIA, INNOVACION Y TURISMO** **HORIZON 2020** EL PROGRAMA DE INVESTIGACIÓN E INNOVACIÓN DE LA UNIÓN EUROPEA

# ETERNITY

## Research Staff



**Mireya Fernández**  
 Project Manager & PhD Co-director



**Ferran Silva**  
 GCEM Director & PhD Co-director



**Marcos Quilez**  
 PhD Director



**Marc Pous**  
 PhD Director



**Marco Azpúrua**  
 PhD Director

# About Nextium

Team that brings 20 years of expertise in automotive industry.

Our talent comes from Ficosa Panasonic Advanced Communications & In-Cabin Monitoring Business Units.



Strong background in multi-disciplinary fields, such as radiofrequency, HW, SW, system validation, global certification, design for manufacturing.

Part of Idneo's global organization, with more than 450 employees.



More than 5 million vehicles in the market equipped with our connectivity products and technologies.



- Embedded Software
- Cloud Services
- Electromagnetic Compatibility
- Radio Frequency & Antenna Design
- Hardware Design
- Design for Manufacturing
- System Integration & Validation
- Compliance & Certification

# Biometrics Product Portfolio & Services

## A-Life



- > Child Presence detection
- > Intrusion detection
- > Driver drowsiness prediction
- > Driver monitoring system

## MobiX



- > Passenger Monitoring
- > Route optimization
- > Passenger alert system
- > Driver Monitoring

## VitaX



- > Contactless Vital Signs
- > Heart Rate Monitoring
- > Breathing Rate
- > Heart Rate Variability

AUTOMOTIVE

MOBILITY

HEALTH

## B-MetriX



- > Occupant Monitoring
- > Seat Belt Reminder
- > Occupant Classification
- > Occupant Vital Signs

## Smart-X



- > Passenger Counting
- > Passenger Location
- > Passenger Classification
- > Dynamic Tolling

## VisioX



- > Contactless SpO2
- > Contactless Vital Signs
- > Heart Rate Monitoring
- > Breathing Rate

# ASEPEYO

## HEALTH AND SAFETY AT WORK



**Who are we:**  
 Company that insures occupational accidents and diseases

**What have we:**  
 Two hospitals for the rehabilitation of injured workers.  
 Each hospital has 4 operating rooms .  
 Diagnostic equipment.  
 Fully equipped physiotherapy and rehabilitation rooms.

**Our interest:**

Team dedicated to the prevention of occupational hazards included **Especially Sensitive Workers**



Kick-off Meeting  
October 11<sup>th</sup> / 12<sup>th</sup>



**Lisbon Office**

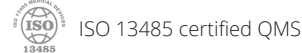
Av. 5 de Outubro 70-2  
1050-059 Lisbon | Portugal  
+351 211 956 542 | info@plux.info

**About Us**



we develop biosignals acquisition toolkits for  
medical R&D and product development

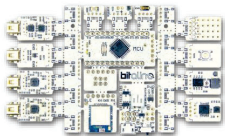
- 📍 Located in Lisbon, Portugal
- 🚀 Started in 2007
- 👥 Team of over 34 dedicated members, 1/2 in R&D
- 📡 Wireless biosignal acquisition platforms
- 📄 Customers in over 600 universities and institutions in 80+ countries



**Our Products**



We provide solutions that cover the entire life cycle of the biosignals experience:  
from the first contact up to the fully-featured medical device.



wireless toolkit for rapid prototyping,  
entry-level research and education



wireless toolkit for biosignals  
research and product development



biofeedback guided  
physiotherapy



LEARN

RESEARCH & DEVELOP

CLINICAL

**Chief Executive Officer**

Rita Cristóvão  
rcristovao@plux.info

**Lead Sales & Product Manager**

Pedro Gomes  
pgomes@plux.info

**Innovation & R&D Manager**

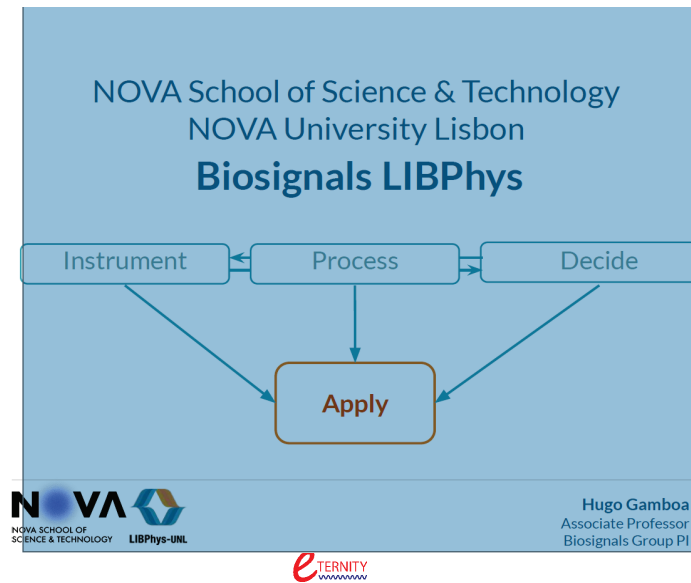
Pedro Duque  
pduque@plux.info



**Lisbon Office**

Av. 5 de Outubro 70-2  
1050-059 Lisbon | Portugal  
+351 211 956 542 | info@plux.info





# ITN ETERNITY Project Introduction

*Project duration: 1<sup>st</sup> March 2021- 1<sup>st</sup> March 2025*

*Official Kick-off event: 11<sup>th</sup> and 12<sup>th</sup> October 2021*

Dr. Ir. Anne Roc'h



**TU/e**

“**Innovative Training Networks (ITN)**” drive scientific excellence and innovation. They bring together universities, research institutes and other sectors from across the world to train researchers to doctorate level.”

“**European Training Networks** help researchers gain experience of different working environments while developing transferable skills.”

**MARIE SKŁODOWSKA-CURIE ACTIONS**  
Research Fellowship Programme

The Marie Skłodowska-Curie actions support researchers at all stages of their careers, regardless of age and nationality. Researchers working across all disciplines are eligible for funding. The MSCA also support cooperation between industry and academia and innovative training to enhance employability and career development.

[https://ec.europa.eu/research/mariecurieactions/actions/research-networks\\_en](https://ec.europa.eu/research/mariecurieactions/actions/research-networks_en)

**e**TERNITY  
European Training Network  
on Electromagnetic Risks  
in Medical Technology

<https://eternity-project.eu/>



**TU/e**

# ITN ETERNITY- Project Introduction



This project has received funding from the European Union's EU Framework Programme for Research and Innovation Horizon 2020 under Grant Agreement No. 955.816.

<https://eternity-project.eu/>



**TU/e**

## Table of Content

- Introduction, objectives
- Overview of the Research program
- Overview of the Training program

65

## Table of Content

- Introduction, objectives
- Overview of the Research program
- Overview of the Training program

66

## Introduction, objectives

### Medical technology market: a quick overview

#### Some facts:

- 95% of Europe's 25,000 medical technology companies are small and medium-sized enterprises (SMEs). 95-97% of 700 companies in the Netherlands
- 500 000+ jobs in Europe
- 15BEuro in positive trade balance
- First sector in patent application in Europe (7%) : high level of research and development within the industry, and of close co-operation with the users.
- Products typically have a lifecycle of only 18-24 months before an improved product becomes available.

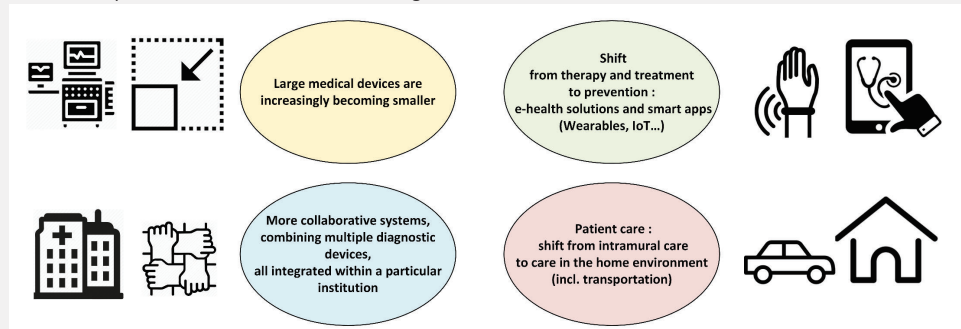
MEDTECH: The European Medical Technology Industry, in Figures – 2015  
The MedTech market in the Netherlands – KPMG - 2017

67

## Introduction, objectives

### Medical technology market: a quick overview

One of Europe's most diverse and innovative high-tech sectors



"The European Medical Technology Industry in Figures", MedTech, 2018  
[http://www.medtech-europe.org/sites/default/files/resource\\_items/files/2018\\_MTE\\_MedTech\\_FactsFigures.pdf](http://www.medtech-europe.org/sites/default/files/resource_items/files/2018_MTE_MedTech_FactsFigures.pdf)

68

## Introduction, Objectives

**MAUDE adverse event reports (USA)**  
January 1, 2010 to December 31, 2018

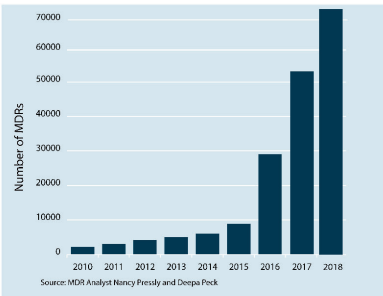


Figure 1: Increase in the number of electromagnetic interference medical events in the US

### EMI adverse event: a “high level” overview

A Rule-based approach (the conventional approach) no longer suffice:

- Standards lagging behind
- High innovation rates
- More complex scenario of use
- More environments
- More wearables and IoT... (wireless communication)

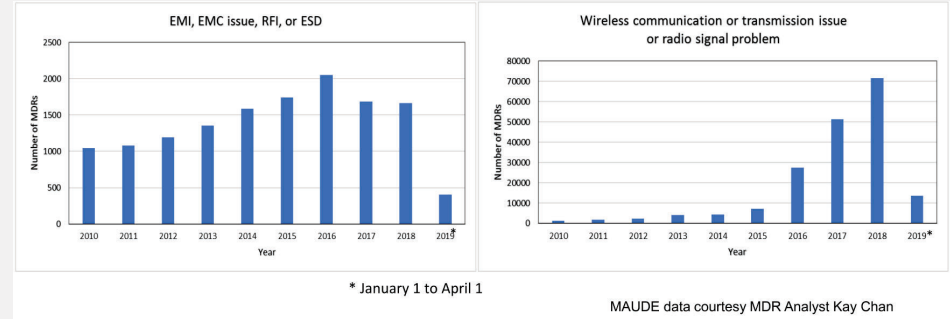
Need for a risk-based approach

- European law demands it
- Standards lagging technological development
- Need for more flexibility in innovation (focus on (EMI) specific challenges rather than “following strict rules”)

An FDA Perspective on Medical Device: EMC and Wireless –an Update, Jeffrey L. Silberberg, IEEE EMC 2019, New Orleans

## Introduction, Objectives

### EMI adverse event: more details



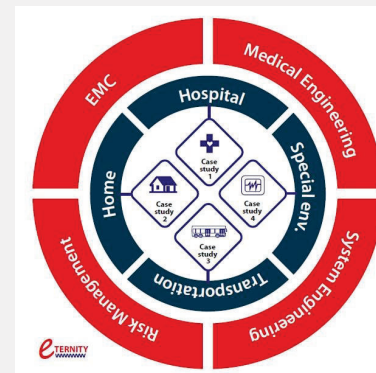
An FDA Perspective on Medical Device: EMC and Wireless –an Update, Jeffrey L. Silberberg, IEEE EMC 2019, New Orleans

## Introduction, Objectives

- A lack of understanding and no clearly prescribed risk-assessment methodology in place.
  - Small and medium-sized enterprises (SMEs), which are often not able to cope with such a major shift in approach, make up almost 95% of the medical-technology industry.
  - Users of medical systems (e.g., hospitals) are also struggling with this EMI risk-based

“This new, risk-based methodology will of course require not only a **formalization**, but **trained specialists** to address the complexity of the systems and all the individuals and institutions involved.”

## Introduction, Objectives

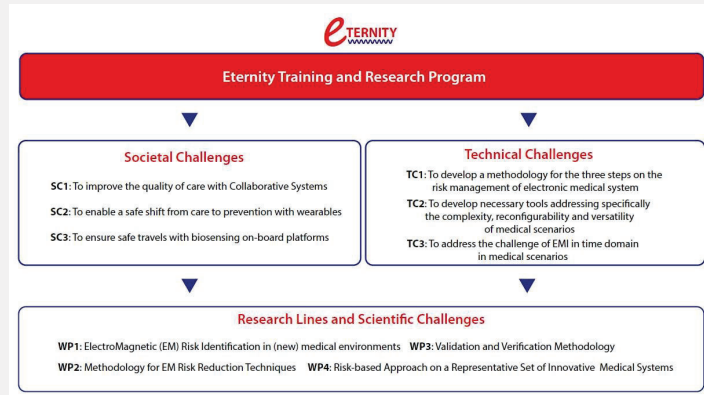


A multidisciplinary approach with all medical environments represented

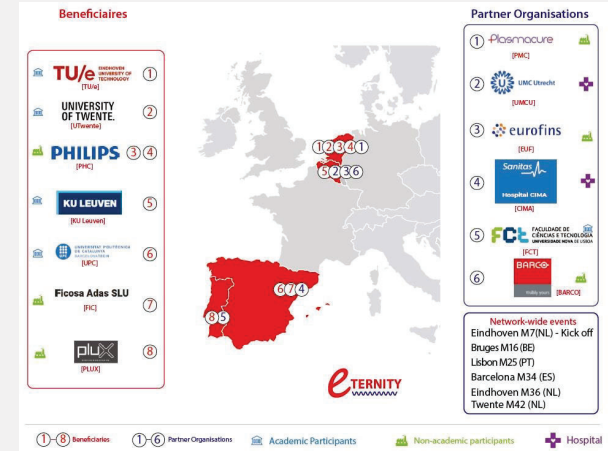
### Risk based approach

“It is about understanding new environments of use, adapting and inventing solutions of protection with respect to new EMI issues, while maintaining the key design characteristics of the medical device. It is also about ensuring a long-term resilience and reliability to constantly changing, increasingly complex EMI scenarios.”

## Introduction, Objectives



73



74

## Table of Content

Introduction, objectives

Overview of the Research program

Overview of the Training program

75

## Overview of the research program



The WP structure of the ETERNITY project.

76

# Eternity - ESR projects

|     |   |   |
|-----|---|---|
| WP1 | EMI footprint characterization of medical devices (ESR1)  | + |
|     | Characterization of medical electromagnetic environments for the use of new digital communication systems (DCS) (ESR2)                        | + |
|     | Application of system thinking and system safety to EMI risk assessment of medical applications (ESR3)  | + |
| WP2 | Risk-Based EMI-Aware Design of Complex Systems (ESR4)   | + |
|     | Optimal Digital Communication Systems in electromagnetically noisy medical environments (ESR 5)   | + |
|     | EMI-Resilient Sensor and Communication Networks for complex medical systems-of-systems (ESR 6)  | + |
| WP3 | Behavioural EMI Risk-based testing of medical devices (ESR7)  | + |
|     | Improvement of digital communication systems immunity tests to include complex electromagnetic disturbances (ESR8)                            | + |
|     | Development of EMI sensors (ESR9)   | + |
| WP4 | Risk management in collaborative medical system development (ESR10)   | + |
|     | Evidence for quantitative correlation(s) between different room test environments at different hierarchy levels of system integration (ESR11) | + |
|     | EMI from connected, autonomous and electrical vehicles on Driver Monitoring Systems (ESR12)   | + |
|     | EMI Risk assessment in Medical Device Innovation Process - from design to production (ESR13)  | + |
|     | Towards standardized EMC assurance case patterns for the certification of medical equipment (ESR14)   | + |

# Table of Content

- Introduction, objectives
- Overview of the Research program
- Overview of the Training program

# Overview of the training program

How the training is structured for each ESR. The training is structured into 3 different tracks, which will be tailored to the needs of each ESR.

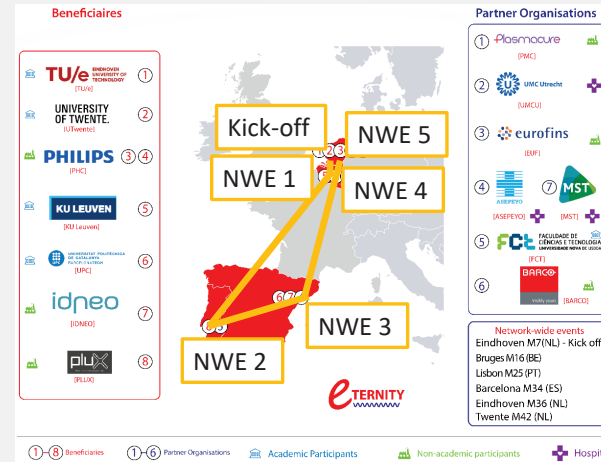
The series of Network-Wide Events will serve as platforms for the training.

1. Training through Research (incl. Teaching)
2. Training for Scientific Expertise and Technology
3. Training for Innovation.

| Months  | 6                         | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 |  |  |  |  |  |  |  |
|---|---------------------------|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|--|--|--|--|--|
| 1. Research (incl. Teaching)  | Personal Research Project |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |
| 2. Secondments<br>(2 sec. incl. 1 common sec./ESR)  | 4 to 6 months per ESR     |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |
| 3. Skills for the Jobs of Tomorrow  | According to PGDP         |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |
| 4. Scientific expertise and Technology<br>(*Expert Talk)  | According to PGDP         |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |
| 5. Immersive Learning for Innovation<br>(Lecture: L Bootcamp: B Final Pitch: P)<br>NWE<br>(Training: T Special Session: SS Workshop: W) |                           |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |

# Overview of the training program

Network Wide events





## Overview of the training program

Main Network-Wide Events, Training Schools, Workshops and Special Sessions

|    | Main Training Events & Conferences           | ECTS | Lead Institutions | Month |
|----|--|------|-------------------|-------|
| 1  | Kick-off meeting                             | 1    | TUe               | M7    |
| 2  | Training School 1                            | 2    | KUL               | M12   |
| 3  | Special Session at EMC Europe Symposium 2022 | 1    | KUL               | M19   |
| 4  | Training School 2                            | 2    | PLUX              | M20   |
| 5  | Workshop at APEMC 2023                       | 1    | UT                | M22   |
| 6  | Training School 3                            | 2    | UPC               | M28   |
| 7  | Special Session BIOSTEC – BIODEVICES 2024    | 1    | PLUX              | M36   |
| 8  | Training School 4                            | 2    | PMS               | M36   |
| 9  | Training School 5                            | 2    | UT                | M42   |
| 10 | Workshop at EMC Europe 2025                  | 1    | TUe               | M43   |

81

## Overview of the training program

### Typical programme for a Network-Wide Event

| Day  | Event  | Who is involved   |
|--|--|---|
| 1  | am: Presentations ESRs 1-7   | ESRs, Supervisors, Beneficiaries, Partner Organizations, plus members of the Management Team (MT) |
|  | pm: Presentations ESRs 8-14  |   |
| 2  | am: WP leaders meeting // ESRs Researcher Council meeting                      | WP leaders, Coordinator, MT // 14 ESRs  |
|  | pm: Supervisory Board (SB) meeting   |   |
|  | am: Training meeting to discuss matters arising from training and secondments  | Training Coordinator, WP Leaders, Coordinator, Project Manager                                    |
|  | pm: Laboratory/Factory visits for ESRs   |   |
| eve: Official Project Dinner + Guest lecture by invited speakers | All  |   |
| 3  | am+pm: S&T Training  | All ESRs + Supervisors (optional)   |
| 4-5  | am+pm: Immersive Innovation training (1 day training, 1 day Boot-camp in Team) | All ESRs + Supervisors (optional) + Coaches (Innovation and Industry)                             |

82

## Overview of the training program - Secondments

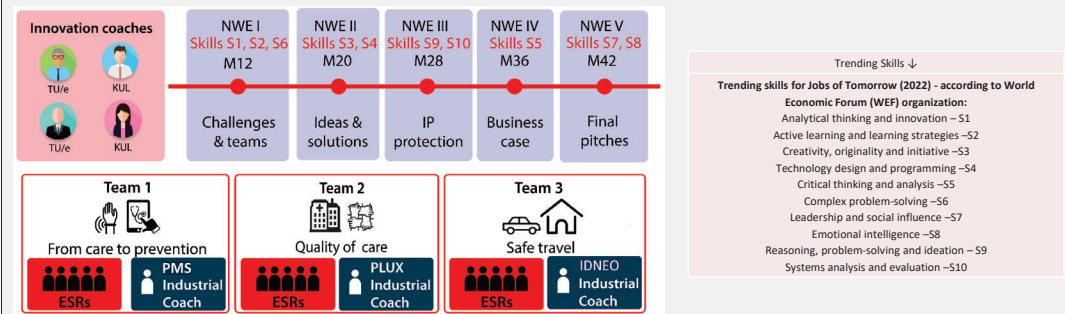
Table 4: Recruitment deliverables per Beneficiary

| ESR No. | Recruiting Participant | Seconded at  | Start (Month) | Duration (months) |
|---------|------------------------|--|---------------|-------------------|
| ESR1    | TU/e                   | PMS <sup>1*</sup> , ASEPEYO                          | 7             | 36                |
| ESR2    | UPC                    | PMS <sup>1*</sup> , IDNEO                            | 7             | 36                |
| ESR3    | KU Leuven              | PMS <sup>1*</sup> , PLUX                             | 7             | 36                |
| ESR4    | UT                     | PMS <sup>1*</sup> , PLUX                             | 7             | 36                |
| ESR5    | UPC                    | KU Leuven <sup>2*</sup> , PMC <sup>2*</sup>          | 7             | 36                |
| ESR6    | KU Leuven              | UPC <sup>2*</sup> , PMC <sup>2*</sup>                | 7             | 36                |
| ESR7    | TU/e                   | UMCU <sup>3*</sup> , IDNEO                           | 7             | 36                |
| ESR8    | UPC                    | IDNEO, PLUX <sup>4*</sup>                            | 7             | 36                |
| ESR9    | KU Leuven              | UT/MST, PLUX <sup>4*</sup>                           | 7             | 36                |
| ESR10   | PMS                    | UMCU <sup>3*</sup> , KU Leuven, UT/MST               | 7             | 36                |
| ESR11   | PMS                    | UMCU <sup>3*</sup> , MST/TUe <sup>5*</sup> , ASEPEYO | 7             | 36                |
| ESR12   | IDNEO                  | TU/e <sup>6*</sup> , EUF <sup>6*</sup>               | 7             | 36                |
| ESR13   | PLUX                   | FCT, EUF <sup>6*</sup>                               | 7             | 36                |
| ESR14   | KU Leuven              | PMS <sup>1*</sup> , PMC                              | 7             | 36                |

83

## Overview of the training program – Immersive Training

Figure 5: Steps and structure of the immersive training



84

## Example of an ESR Project (ESR1)

|  |           |                  |           |                     |                   |
|--|-----------|------------------|-----------|---------------------|-------------------|
| ESR1   | TU/e (NL) | PhD enrolment: Y | Start: M7 | Duration: 36 months | Deliverables: 1.1 |
| (Co-)supervisors/mentors: Anne Roc'h (TU/e, NL), Frank Leferink (UT, NL), Javier Anies Escartfn (ASEPEYO ES)   |           |                  |           |                     |                   |
| Project title/WP: EMI footprint characterization of medical devices (WP1)  |           |                  |           |                     |                   |
| Objectives:<br>Overview tests that are required to evaluate the EMI footprint of a system, including its cabling and routing.<br>Evaluation of EMI footprint of existing medical devices with demonstration of its reconfigurability for diverse placement scenario.                 |           |                  |           |                     |                   |
| Expected Results:<br>Documented techniques to evaluate the EMI footprint of a medical device for diverse scenarios in an environment.<br>Validation of the developed techniques to ensure their reconfigurability in determining requirements in the design process for new devices. |           |                  |           |                     |                   |
| Planned secondment(s):<br>@PMS, NL (mentor: Rob Kleihorst): Architectural concept of integration of EMI footprint in the context of imaging systems (M13-M15);<br>@ASEPEYO, ES (mentor: Mr. Javier Anies Escartfn): EMI footprint concept will be applied in a hospital (M25-M27).   |           |                  |           |                     |                   |
| Enrolment in the Doctoral degree: TU Eindhoven Graduate School (NL)  |           |                  |           |                     |                   |

85



TU/e



European Training Network  
on Electromagnetic Risks  
in Medical Technology

86



TU/e

ESRs' presentations

87



TU/e

Marc Kopf – ESR 1



## About Marc Kopf (ESR 1)

- From Hamburg, Germany
- Project Start: July 2021 at TU/e, Eindhoven
- Project: EMI Footprint Characterization of Medical Devices
- B.Sc. and M.Sc. in Electrical Engineering from Hamburg University of Technology (TUHH)
- Master Thesis (2020): "Framework for Hybrid Field-Circuit Simulation Using a General Computation Environment"
- Industry: Spend some time at a Startup, developing IoT VHF Receivers for greener shipping



My Hometown:



... where I liked to bike a lot

I love to make food, here are some of my creations:



(no, these are not a stock photos)



... and I used to be a firefighter as a hobby



Personal introduction of: **Ukiwo Anya**  
Kick-off Event 11<sup>th</sup> October 2021



## Introduction

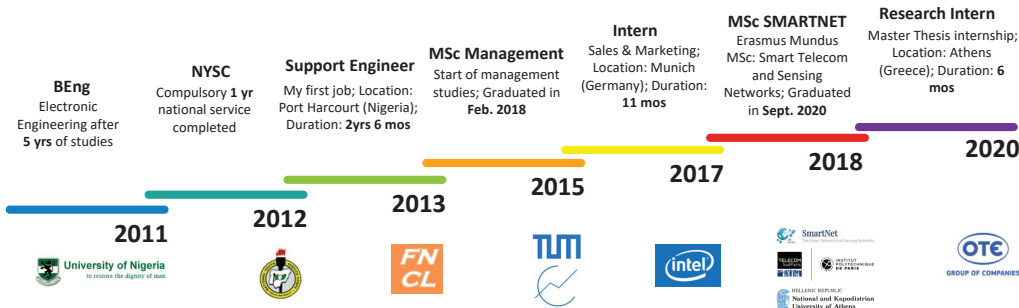


• I was born in Lomé, the capital of Togo, a West African country, to Nigerian parents.

• Bachelor's degree in electronic engineering – University of Nigeria, 2011

• Hobbies – Football (Chelsea FC fan), watching movies and listening to music. Developing interest in chess





Personal introduction of: **Miriam González**

ETERNITY Kick-off Event October 2021

**ESR3: Application of system thinking and system safety to EMI risk assessment of medical applications.**

### Background

- Born in **1998**, Granada, **Spain**.
- **2016-2020**: Degree on Telecommunication Engineering at University of Granada.
- **2019**: Internship to join the computational Electromagnetics research group of the UGR (Dept. of Electromagnetism and Matter Physics).
- **2020-2021**: Part of a research project carried out by the Dept. of Signal Theory, Telematic and Communications of the UGR.
- **2020-2021**: MSc degree in Physics and Mathematics (FisyMat).

### Research topic

- **ESR3**: Application of system thinking and system safety to EMI risk assessment of medical applications. **KU Leuven, M-group, Campus Brugge (Belgium)**.
- EMI robustness has not been looked at with STAMP/STPA.
- The **aim** is to extend the hazard-and-risk-analysis methods STAMP (System-Theoretic Accident Model and Processes) and STPA (System-Theoretic Process Analysis) to the EMI risk analysis of medical applications.



*Thank you for your attention*

Miriam González

ETERNITY Kick-off Event October 2021

Łukasz Guziczak

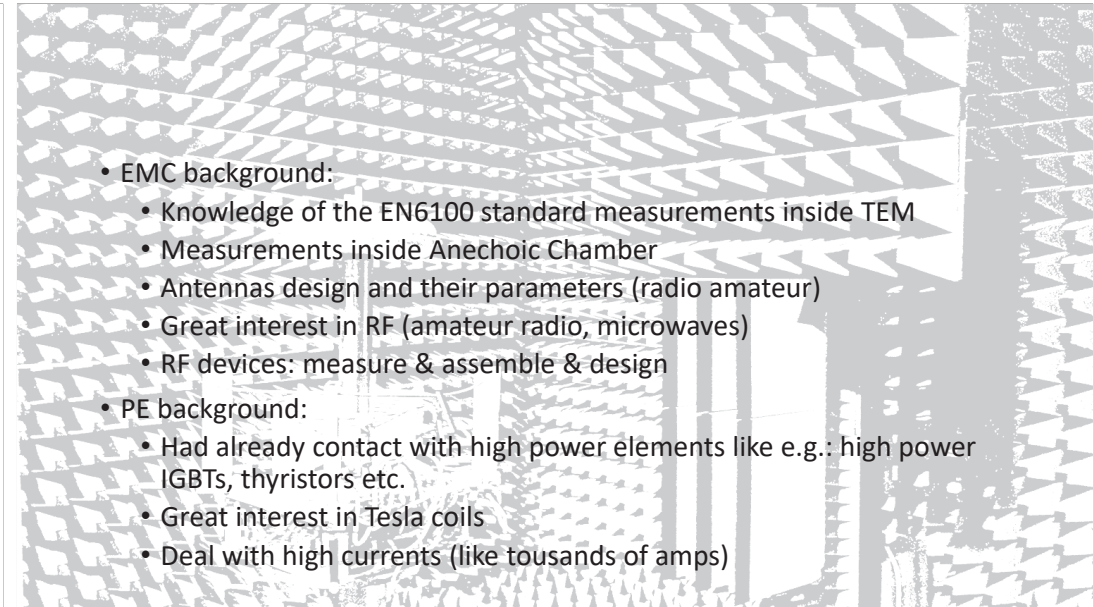
Wrocław University of Science and Technology

Ph.D. position in EMC/ PE group at University of Twente, Enschede, The Netherlands

- Engineer's degree- Electronics
  - Near-field spectrum analysis of electromagnetic discharges (up to .5GHz)
- Master studies- Advanced Applied Electronics
  - 16GHz EMC E-Field probe
- Here are some of my projects (done & not done just yet):
  - DRSSTC, Plasma speaker, LF H-field probe, Heterodyne spectrum analyzer



- EMC background:
  - Knowledge of the EN6100 standard measurements inside TEM
  - Measurements inside Anechoic Chamber
  - Antennas design and their parameters (radio amateur)
  - Great interest in RF (amateur radio, microwaves)
  - RF devices: measure & assemble & design
- PE background:
  - Had already contact with high power elements like e.g.: high power IGBTs, thyristors etc.
  - Great interest in Tesla coils
  - Deal with high currents (like thousands of amps)





❖ From

❖ I lived.

❖ My Hobbies

❖ B.E

❖ M.E

❖ Ph.D.

ESR5: Optimal Digital Communication Systems in Electromagnetically Noisy Medical Environments

- ❑ Research Group: GCEM-Electromagnetic Compatibility Group
- ❑ Expected Research Area: Communication Engineering, Microwave Engineering and Digital Communication.

**Personal Information**

21.06.1989 Mohammad Kameli  
Born in Gonabad, Iran

**Education**

2007-2013 B.Sc. student in Electrical Engineering- Telecommunication, Ferdowsi University of Mashhad, Iran

2017-2020 M.Sc. student in ICT, University of Padua, Italy

M.Sc. thesis at the deutsche Telekom Chair of Communication Networks, TU-Dresden, Germany.

**Work Experience**

2013-2015 ETANIR:  
Electrical Engineer – Project Assistant

2015-2017 Electrosazeh Razhan:  
Electrical Engineer – Project Assistant

Relocate 400kV & 63kV Transmission lines

Relocate 400kV & 63kV Transmission Sites

2/03/21 Marie Skłodowska Curie - No 955816 103

**ESR6: EMI- Resilient Sensor and Communication Networks**

First steps have been taken

- ❑ Combination of multiple error detection and correction between different hardware/software layers

Two Errors Correction in Hamming Codes!

- ❑ Extended Hamming block
- ❑ Detect two errors
- ❑ Combining warnings from other layers with information in Hamming codes and correct two errors.

Data 9 bits

1 0 1 1 0 0 1 0 1

10/21/2021 Marie Skłodowska Curie - No 955816 104

## Who am I ?



## Education and Career

- I'm from Brazil!
- Graduated in Telematics at IFPB (2011 - 2016)
  - ◆ Software Developer at Accenture
- Sandwich Degree in IT Technologies (Phoenix AZ - United States) (2013-2014)
- Master in Electrical Engineering at Unicamp (2016 - 2018)
  - ◆ Research about Automatic Identification of Brazilian Regional Accents (Machine Learning)
  - ◆ IT Business Analyst at IBM (2017 - 2021)

## I like to....

- Play Chess
- Walking with dog
- Go Hiking
- Drive to Somewhere.... Just enjoying the environment!
- Cooking
- Read and Watch Movies
- Go Camping



## About Me

Name: Xinting Xue (Toby)

Nationality: China

Hometown: Xi'an City, Shaanxi Province

Contact:

- Email: [Xinting.Xue15@alumni.xjtlu.edu.cn](mailto:Xinting.Xue15@alumni.xjtlu.edu.cn)
- WhatsApp: (+86)15339278641



### Education

- 2015-2019: BEng: Electronic Engineering at XJTLU & UoL
- 2019-2020: MSc: Electrical Power Systems Engineering at UoM

### Languages

- Mandarin (Native speaker)
- English (Professional proficiency)
- Dutch (Primary proficiency)

### Research

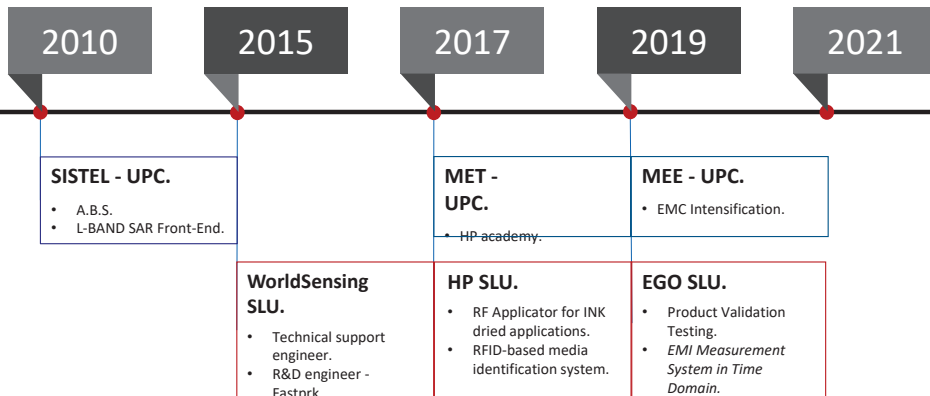
- Gliding arc plasma for energy applications.
- Contribution of demand side management to interconnected transmission networks
- Power factor correction using ARM MCU

### Hobbies

- Badminton
- Photography
- Cycling
- Video games etc.



## WHY ESR10 POSITION?



## LEISURE ACTIVITIES

- Travelling with my dog Roc.
- Dancing.
- Any kind of sports.
- Martial Arts.
- Volunteering @nomascolillasenelsuelo.







**Personal Presentation**  
Nandun Senevirathna

I am Nandun Senevirathna from Sri Lanka.  
I work with Philips Medical Systems and TU/e in the Netherlands.

**Education:** ERASMUS MUNDUS JOINT MASTER IN SUSTAINABLE TRANSPORTATION AND ELECTRICAL POWER SYSTEMS – The University of Oviedo Spain, the University of Nottingham UK, Sapienza University of Rome Italy.

BACHELOR OF SCIENCE OF ENGINEERING (HONS.) , Electrical and Information Engineering – The University of Ruhuna Sri Lanka.



**ESR11: Evidence for quantitative correlation(s) between different room test environments at different hierarchy levels of system integration**

**Host:** Philips (NL) **Main supervisor:** Ir. R. Kleihorst

**Co-Supervisor :** Dr. Anne Roc'h (TU/e)

*We work together to accomplish ETERNITY programme's objective of achieving a breakthrough in the design of innovative, safe and reliable medical equipment with EMI risk management. This will enable safe and reliable medical equipment and innovation improving people's lives.*



UNIVERSITAT POLITÈCNICA DE CATALUNYA POLYTECHNIC idneo pLUX PHILIPS

KU LEUVEN UNIVERSITY OF TWENTE TU/e ERASMUS MUNDUS UNIVERSITY OF TECHNOLOGY

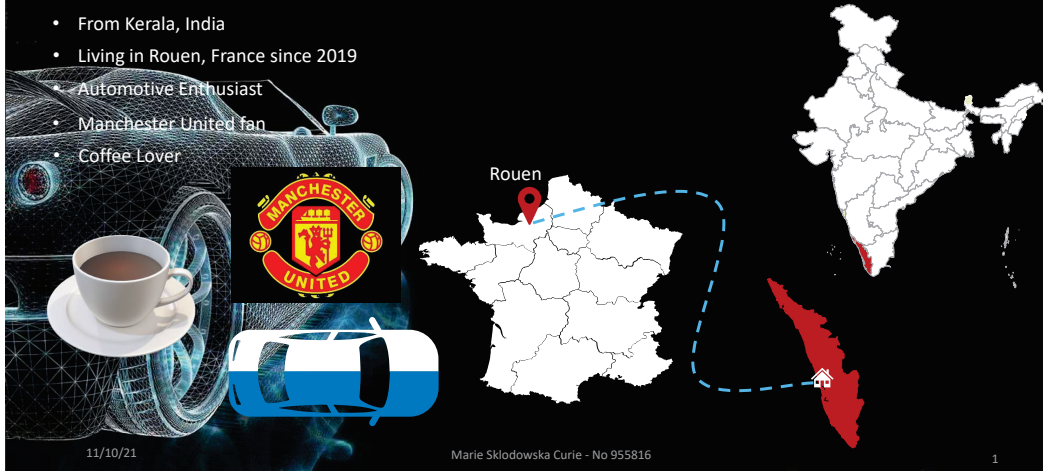
Short Introduction: [Geon George Bastian \(ESR 12\)](#)

Kick-off event 11<sup>th</sup> October 2021

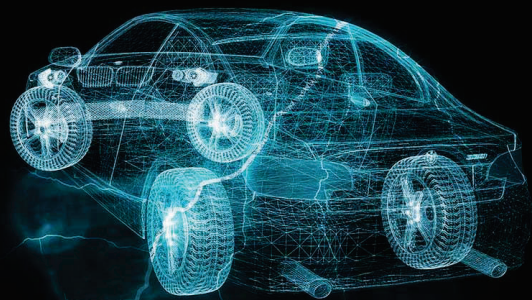
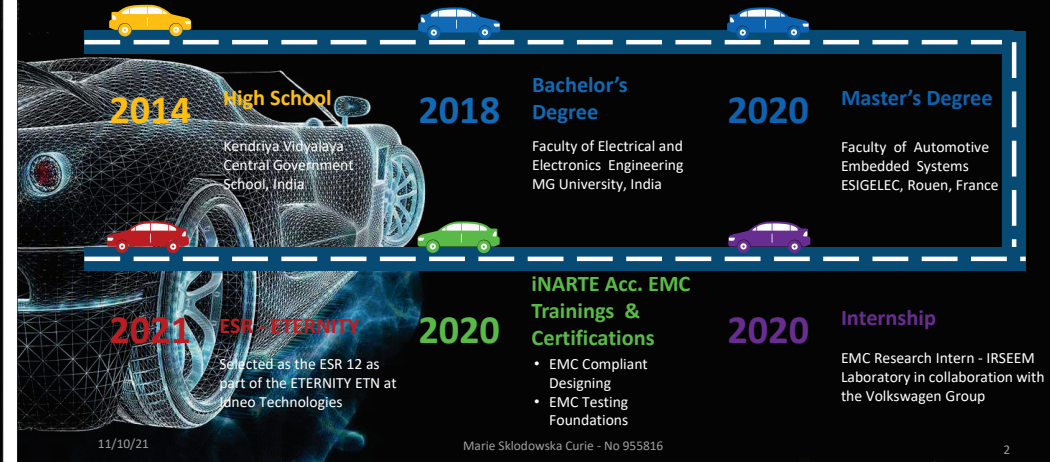
11/10/21 Marie Skłodowska Curie - No 955816

### 1. Personal Introduction

- From Kerala, India
- Living in Rouen, France since 2019
- Automotive Enthusiast
- Manchester United fan
- Coffee Lover



### 2. Education and Experience



THANK YOU

### Tiago Nunes

25, Portuguese

- Master of Engineering in Biomedical Engineering
- Master in Technological Innovation in Healthcare
- BSc. Electrical and Electronic Engineering



### Experience

- Biomedical Engineer internship  
Hôpital de la Pitié-Salpêtrière, Paris
- Hardware & Firmware Engineer internship  
Plux Wireless Biosignals, Lisbon



### Eternity

- ESR 13: EMI Risk assessment in Medical Device Innovation Process - from design to production



Vikas Ashok Ghatge

### ESR14 – Personal Introduction

11<sup>th</sup> October 2021

### Short Introduction – Vikas Ghatge



- ❑ Name – Vikas Ashok Ghatge
- ❑ Country – India, Mumbai
- ❑ Language – English/Hindi/Marathi
- ❑ Domain -Electronics Hardware



**S** Experience of EMC issues  
 Master thesis in EMC measurement  
 Team-work  
 Honesty, Integrity, Optimistic

**W** Emotional Overthinking Overdreeming

**O** To work in cutting edge medical technology  
 Publication of research in journal of repute  
 Offering consultancy services  
 Contributing to EMC community

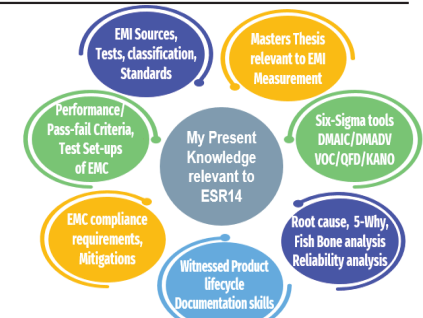
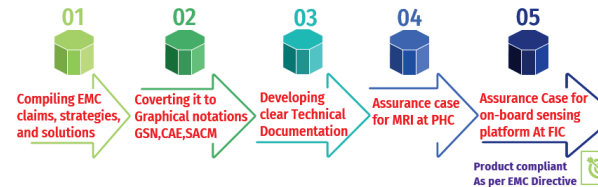
**T** Adopting to western culture  
 Belongingness to family

#### Major Work Experience

- Circuit design / Simulation / Prototype / PCB layout / Testing
- Product design for EMI/EMC, Environmental compliance
- Reliability analysis
- Technical Documentation
- Interaction with various vendors, production, EMS teams

### My experience relevant to ESR14 & Motivation

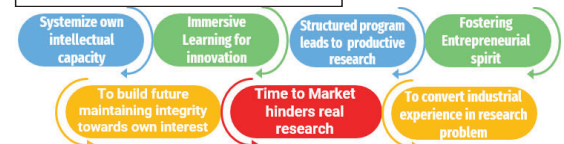
#### ESR14 - Towards standardized EMC assurance case patterns for the certification of medical equipment



#### Master's thesis - Design and Fabrication of CE Measurement system

1. Simulation for CE of Buck converter
2. Design/Analysis/Simulation/Prototype of LISN, Current probe
3. Extraction of CM/DM noise
4. Aspects of EMI filter design

#### My motivation as a researcher ?



# Q&A





---

## Proposal training

---

## ITN ETERNITY

---

### Introduction

Since this is the first time that the PhD students will meet, either live or online, we propose to start with a couple of energizing exercises in order to getting to know each other better.

### Innovation

We will then introduce methods to get creative and being innovative and help each other to develop ideas.

This involves brainstorming, learning to postpone judgement, saying 'Yes and' instead of 'Yes but' and using the force-to-fit technique.

The participants will get an assignment to build something in commission in limited time. We will give feedback on the process.

### Pitching your ideas

For scientists, it has become increasingly important to be able to present their research and proposals in a concise and convincing manner. Be it in a meeting with colleagues, for a potential partner outside of the university or in a presentation to procure funding or grants.

The participants learn the theoretical principles and carry out short assignments. Personal feedback is then given by the trainer and the other participants. This is done on the following points:

- Clarity and brevity
  - An engaging introduction and a powerful conclusion
  - Structure
  - Enthusiasm
- 

---

October 12<sup>th</sup> 2021

---

Online/live

---

### Trainer



This training can be given by Maarten Bordewijk. Maarten specializes in time- and project management and communication skills.

### Practical

The training will take place either in an online set-up, or live in Eindhoven on October 12<sup>th</sup> 2021, from 9.30 – 17.00 hrs and is meant for 14 PhD candidates of ITN ETERNITY. The language is English.

exempted from VAT.

## Training: Intervision session on Supervision (ONLINE/LIVE)

Principal Investigators have been working in the scientific field for several years and have a fair amount of experience. Conversations with colleagues are largely about the content of the research.

One of the bigger gaps in the education as a scientist is the training and coaching in her/his role as a supervisor. This might be a similar situation for their colleagues working in industry.

Research into the success and failure factors of PhD programs has shown that the impact of supervision is the most important factor. The relationship between the PhD student and the supervisor, or supervisors, is crucial. There has to be a connection at the level of the study content as well as a personal connection.

We propose to facilitate an intervision session which enables supervisors to go more into detail regarding challenging situations with their PhDs and to ultimately advise and inspire each other.

The participants will discuss situations that they will introduce themselves. We will also introduce relevant topics which include:

- leadership style: adjust it to specific situations (Situational Leadership)
  - effective communication, taking into account intercultural differences
  - constructive feedback
- 
- 

## Trainer

The intervision session can be facilitated by Dr. Brigitte Hertz. Brigitte started her own training agency more than 20 years ago ([www.bhertz.nl](http://www.bhertz.nl)).

Her specialties are leadership training, communication and coaching. Brigitte holds a PhD in Communication Sciences.



## Practical

The session will take place in Filmzaal Zwart Doos or in an online set-up (Zoom) on October 12<sup>th</sup> from 9.30 – 12.00 hrs.

The language is English. The intervision session will have one trainer for about 8 participants.



