

PAINLESS

An innovative training network (ITN) on
Energy-autonomous portable access points for
infrastructure-less networks

NEWSLETTER
DATE



*This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under grant agreement No 812991*

Inside this issue

PAINLESS-TeamUp5G Joint Winter School
Speakers and Overview

PAINLESS RESEARCH PROJECTS' UPDATES

PAINLESS & TeamUp5G have
organized a joint Virtual
Winter School in December
2021

To watch a recorded version
please visit our YouTube
Channel or our training
webpage on
[https://painless-
itn.com/training-activities/](https://painless-itn.com/training-activities/)

PAINLESS Research projects' Updates



Prof. Mohamed-Slim Alouini
(KAUST)



Fan Liu (SUSTech)



Dario Pedro (PDMFC Lisbon)



Elena Gatti (UCL)



Fernando Velez (IT, Portugal)



Pete James (Lyra Electronics)

Professor Alouini is distinguished Professor in Electrical and Computer Engineering. He is currently working on addressing the uneven global distribution, access to, and use of information and communication technologies by studying and developing new generations of aerial and space networks as a solution to provide connectivity to far-flung, less-populated, and/or hard-to-reach areas.

Professor Alouini provided a lecture on "Towards connecting the remaining 3+ billion."

Fan Liu is currently an Assistant Professor of the Department of Electrical and Electronic Engineering, Southern University of Science and Technology (SUSTech). His research interests include Joint Radar Sensing and Communications, Intelligent Sensing and Communications for Vehicular Network, MmWave and Massive MIMO Communications and MIMO Radar Signal Processing.

Fan Liu provided a lecture on "Integrated Sensing and Communications."

Dario Pedro is CEO & Software Team Leader at Beyond Vision. His Field of Research is AI & Image Processing for drones. Dario provided a lecture on "Fully Autonomous Drones: From the design board to the skies."

Elena Gatti is European Project Manager at UCL.

Fernando Velez is Assistant Professor at the Department of Electromechanical Engineering of Universidade da Beira Interior, Covilhã, Portugal and he is also a researcher at Instituto de Telecomunicações.

Pete James founded Lyra in 2011 believing Power Electronics would play a significant part in the future of mobility. Pete chairs the Automotive and Road Transport System Technical Professional Network for IET and consults on the infrastructure surrounding automotive electrification.

Elena, Fernando and Pete provided lectures on "Marie Curie Fellowships and Research proposals."



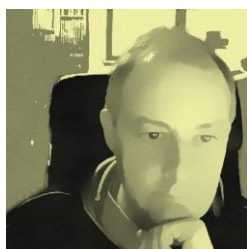
PAINLESS Research projects' Updates



Adam Flizikowski (IS Wireless)



Virginia Trigo (ISCTE-IUL)



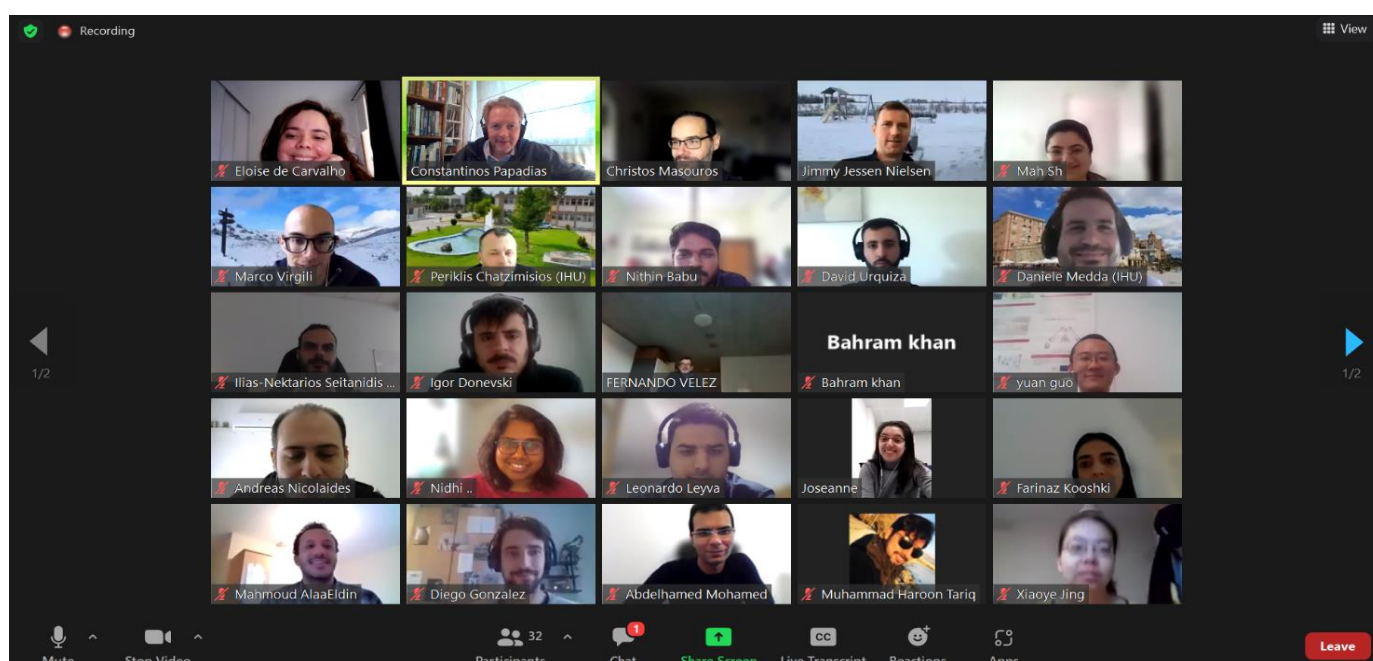
Juan Manuel Vazquez (OEPM)

Adam Flizikowski is an R&D Expert and System Architect in IS-Wireless, Poland. He has 18 years of professional experience in ICT: QoS in heterogeneous networks, RRM in wireless networks (admission/congestion control), vast WiMAX experience (RRM, field testing, modelling), video adaptation, drone-based surveillance, machine learning (pursuing PhD in 4G RRM).

Professor Virginia Trigo currently works as Director of China Programs for ISCTE University Institute of Lisbon. In 2019, Virginia was awarded the title of Commander of Merit for her work in Public Education by the President of the Republic of Portugal and received two prior medals and honours for her work at the Institute for Tourism Studies in Macau. Her research focus is on Innovation and Organisational Development, Entrepreneurship, Human Resource Management and Organisational Behaviour.

Juan Manuel Vazquez is telecommunications engineer who currently works in the field of industrial property as a patent examiner in the electrical specialty, at the Spanish Patent and Trademark Office (SPTO). He previously worked in the field of mobile network technologies for a global telecommunications operator. Specialties: Radiocommunications Industrial property (national, European and international regulations) Prospection and evaluation of mobile network technologies, Radio spectrum management, standardization of new generations of mobile networks, and participation in international standardization forums, evaluation of R&D projects

Adam, Virginia and Juan provided lectures on "Exploitation, IPR and Entrepreneurship"



PAINLESS Research projects' Updates

So what is the recipe ?

How to reduce energy consumption?

- Rethink the topology: small cell offloading, edge/mobile caching
- Optimize protocol (sleep mode etc.)
- Enhance radio link efficiency with new technologies (Massive MIMO, IRF, ...)
- Resource allocation (time, spectrum, space, but also computing, data storage)
- Optimize distributed comms and computing
- Improve RF electronics (amplifier), power electronics, HW (cooling)

How to reduce environmental footprint ?

- Increase user awareness
- Exploit renewable energy: self-powered base stations
- Harvest energy: for sensor networks

Graph: E_{TOT} vs N_{bits} . The graph shows three curves: 'Dumb' (red), 'Conservative' (green), and 'Green' (blue). The 'Green' curve is the lowest, indicating the most efficient energy consumption.

Diagram: A blue arrow points from the 'How to reduce energy consumption?' section to a box labeled 'Increase Efficiency'.

World's first 6G research program started in Finland in 2018

6G Flagship - 6G Enabled Wireless Smart Society & Ecosystem 2018-2026

6G FLAGSHIP UNIVERSITY

1. Wireless Connectivity
2. Devices & Circuits
3. Distributed Computing
4. Services & Applications

Participants (49)

- Mahshid (Host, me)
- Marja Matinmikko-Blue
- Christos Masouros (Co-host)
- Abdelhamed
- Aboubacar Mchangama
- Andrea Tonello
- Andreas Nicolaides
- Arzhang
- Ashok
- AYMAN Abu Sabah
- Bahram Khan
- Constantinos Papadias

PAINLESS Research projects' Updates

Zoom Meeting

Recording...

3) Energy saving

- Efficient motors
- study adaptative algorithms that can minimize the fly time (vertical drones: hexacopteros and quadricopters) and use the planning capacity (wing drones) (this algorithms are adaptable to assure the communications)
- New communication systems more efficient in radio components
- Base of fast charging

Participants (45)

Find a participant

Mahshid (Host, me)

prof.pedrosebastiao

Christos Masouros (Co-host)

Abdelhamed

Aboubacar Mchangama

Andrea Tonello

Andreas Nicolaides

Arzhang

Ashok

AYMAN Abu Sabah

Bahram khan

Constantinos Papadias

instituto de telecomunicações iscte INSTITUTO INTERDISCIPLINAR DE LINGUA

© 2021, Instituto de Telecomunicações 5

Zoom Meeting

You are viewing Elena Gatti's screen View Options

Recording

Mah Sh... Tamas Kerekes Constantinos Papadias Elena Gatti FERNANDO VELEZ Eloise de Carvalho

Marie Skłodowska-Curie Actions in Horizon Europe - An Overview

1. MSCA Doctoral Networks (formerly ITNs)

- Funds consortium based research projects
- Provides recruited researchers with training through research
- Mobility is key – intersectoral, interdisciplinary and international
- Provides full funding for PhD students

2. MSCA Post-Doctoral Fellowships (formerly IFs)

- Provides full funding for an individual postdoctoral researcher
- Mobility is key – intersectoral, interdisciplinary and international
- Training through research
- Opportunities for European or internationally hosted fellowships with opportunities for secondments

3. MSCA COFUND Doctoral and Fellowship Programme

- Collaborative funding through a mono beneficiary scheme
- Training through research
- Mobility is key – intersectoral, interdisciplinary and international
- EC provides a contribution to the funding for a cohort of PhD students or Post-Docs

4. MSCA Staff Exchange Scheme (formerly RISE)

- Funds short-term exchanges of personnel between academic, industrial and commercial organisations throughout the world
- Funds consortium based research projects
- Project implemented through the secondment of staff for a period between 1 and 12 months

Unmute Stop Video Participants 35 Chat Share Screen Live Transcript Reactions Apps Leave

PAINLESS Research projects' Updates

Zoom Meeting You are viewing FERNANDO VELEZ's screen View Options

Mah Sh FERNANDO VELEZ Constantinos Papadimas Elena Gatti

Specific Aspects of a Grant Application (example of MSCA Postdoctoral – Part A – **proposal's first glance**)

Title and Acronym	<ul style="list-style-type: none"> Self-explanatory Memorable
Abstract (Part A) Help matching with evaluators, and evaluators accept a proposal	<ul style="list-style-type: none"> Be concise Provide enough technical/research information to help REA officers and evaluators understand the scope of your proposal Reflect the whole proposal including: <ul style="list-style-type: none"> Overall research theme Research objectives Training objectives Potential Impact, including career paths for the ESRs
Panel matching with a set of evaluators	
Descriptors will help matching with evaluators	<p>Can add up to five (minimum three) descriptors in order of importance:</p> <ul style="list-style-type: none"> The 1st and 2nd descriptors must be chosen from the list provided for the scientific panel you have chosen. The 3rd (4th and 5th) descriptor(s) can be chosen from any of the eight scientific panels.

Participants (43)

Find a participant

Mah Sh (Me) EG Elena Gatti (Host) FV FERNANDO VELEZ A Abdelhamed AM ABOUBACAR MCHANGAMA a Ahmed Al-Sakkaf AN Andreas Nicolaides A Arzhang A Ashok AT Athanassios Triantafyllidis AA AYMAN Abu Sabah Bahram khan

Unmute Start Video Participants Chat Share Screen Live Transcript Reactions Apps Leave

Zoom Meeting You are viewing Pete James's screen View Options

Mah Sh Constantinos Papadimas Pete James Fan Liu

Application Process

```

graph LR
    A[Submit application] --> B[Assessors Mark]
    B --> C[Successful applications notified]
    C --> D[Application due diligence]
    D --> E[Project start]
    C --> F[Revise and Submit application]
    F --> G[Assessors Mark]
    G --> H[Interview with Assessors]
    H --> I[Successful applications notified]
    I --> D
  
```

Participants (43)

Find a participant

Mah Sh (Me) EG Elena Gatti (Host) PJ Pete James Christos Masouros (Co-host) A Abdelhamed AM ABOUBACAR MCHANGAMA a Ahmed Al-Sakkaf AN Andreas Nicolaides A Arzhang A Ashok AT Athanassios Triantafyllidis AA AYMAN Abu Sabah

Unmute Start Video Participants Chat Share Screen Live Transcript Reactions Apps Leave

PAINLESS Research projects' Updates

LEAN versus Innovation

The slide features a diagram with five overlapping circles: 'Waste Reduction' (green), 'LEAN' (green), 'Value Access' (blue), 'Innovation' (blue), and 'Value Translation' (blue). 'Value Creation' is also indicated below 'Innovation'.

Participants (39):

- Mah Sh (Me)
- Christos Masouros (Host)
- VIRGINIA TRIGO
- Abdelhamed
- Adam Flizikowski
- Ahmed Al-Sakkaf
- Andreas Nicolaides
- Arzhang
- Ashok
- AYMAN Abu Sabah
- Christos Masouros
- Constantinos Papadias

Exploitation – meaning (2/3)

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/aga_en.pdf

Exploitation of results

The beneficiaries **must take measures** aiming to ensure **exploitation** of their results — either by themselves (e.g. a beneficiary owning results uses them directly) or indirectly by others (other beneficiaries or third parties, e.g. through licensing or by transferring the ownership of results).

This is a best effort obligation: The beneficiaries must be proactive and take specific measures to try to ensure that their results are exploited (to the extent possible and justified).

Where possible, the measures should be consistent with the impact expected from the action and the plan for the exploitation and dissemination of the results. The exploitation of results should take into consideration the objectives of the Programme (see the specific objectives set out in Article 3(2) of the Horizon Europe Regulation 2021/695), including promoting innovation in the Union and strengthening the European Research Area.

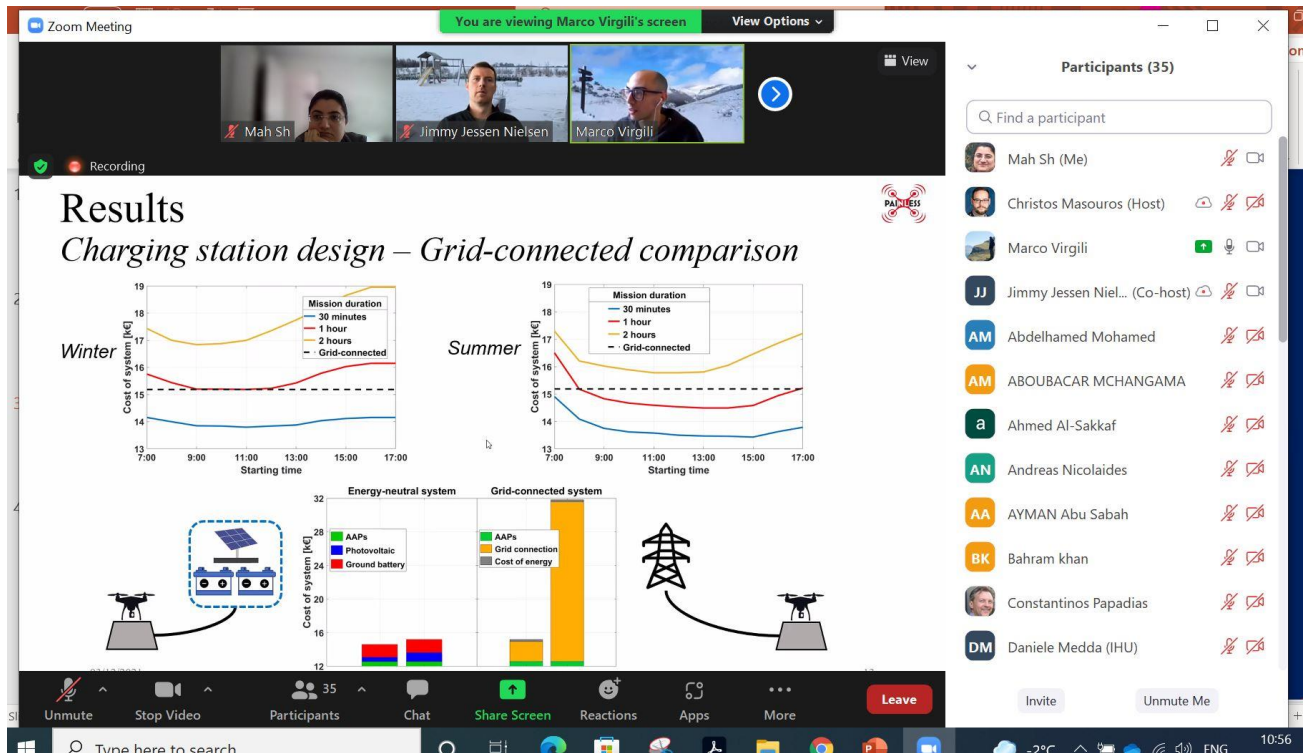
Exploitation (as defined) means the use of results in further research and innovation activities other than those covered by the action concerned, including among other things, commercial exploitation such as developing, creating, manufacturing and marketing a product or process, creating and providing a service, or in standardisation activities.

Exploitation can also be **non commercial**, for example use in non-commercial research or non-commercial teaching activities. When results of the action are used to influence R&I policy or decision making, this is another form of exploitation.

General > Annex 5 > HE Annex 5

137

PAINLESS Research projects' Updates



Zoom Meeting You are viewing yuan guo's screen View Options

Recording

Mah Sh Jimmy Jessen Nielsen Marco Virgili

Joint Information and Energy Transfer of SWIPT-enabled Mobile Networks

Yuan Guo

IRIDA Research Centre for Communication Technologies
Department of Electrical and Computer Engineering
University of Cyprus

PAINLESS-TeamUp5G Winter School

IRIDA Research Centre for Communication Technologies

PAINLESS

University of Cyprus

Participants (37)

Find a participant

- Mah Sh (Me)
- Christos Masouros (Host)
- yuan guo
- Jimmy Jessen Niel... (Co-host)
- Abdelhamed Mohamed
- ABOUBACAR MCHANGAMA
- Ahmed Al-Sakkaf
- Andreas Nicolaides
- Arzhang
- AYMAN Abu Sabah
- Bahram khan
- Constantinos Papadias

Unmute Stop Video Participants Chat Share Screen Reactions Apps More Leave

Unmute Stop Video Participants Chat Share Screen Reactions Apps More Leave

PAINLESS Research projects' Updates

Zoom Meeting You are viewing AYMAN Abu Sabah's screen View Options

Mah Sh Periklis Chatzimisios (I... AYMAN Abu Sabah David Urquiza

David Urquiza

Participants (36)

Find a participant

Mah Sh (Me) Christos Masouros (Host) AYMAN Abu Sabah FERNANDO VELEZ (Co-host) Jimmy Jessen Niel... (Co-host) Periklis Chatzimisios... (Co-host) Abdelhamed Mohamed ABOUBACAR MCHANGAMA Ahmed Al-Sakkaf Andreas Nicolaides Arzhang Bahram khan

Unmute Start Video Participants Chat Share Screen Live Transcript Reactions Apps Leave

Logo: European Union, NOVA UNIVERSIDADE NOVA DE LISBOA, E-A-T 5G M Up

Instituições Associadas: TÉCNICO LISBOA, universidade de aveiro, UNIVERSIDADE DE COIMBRA, a altice, NOKIA, UNIVERSIDADE DE FEIRA SANTOS, U.PORTO, ISCTE IUL

“PHY/MAC Design of Future SCs adopting Multi-packet Reception and Full-Duplex Communications”

PAINLESS-TeamUp5G Winter School

Friday 03 Dec 2021

instituto de telecomunicações

TeamUp5G project has received funding from the European Union's Horizon 2020 research and innovation

Zoom Meeting You are viewing Leonardo Leyva's screen View Options

Mah Sh Periklis Chatzimisios (I... Leonardo Leyva AYMAN Abu Sa...

AYMAN Abu Sabah

Participants (36)

Find a participant

Mah Sh (Me) Christos Masouros (Host) Leonardo Leyva FERNANDO VELEZ (Co-host) Jimmy Jessen Niel... (Co-host) Periklis Chatzimisios... (Co-host) Abdelhamed Mohamed ABOUBACAR MCHANGAMA Ahmed Al-Sakkaf Andreas Nicolaides Arzhang AYMAN Abu Sabah

Unmute Start Video Participants Chat Share Screen Live Transcript Reactions Apps Leave

Logo: European Union, E-A-T 5G M Up, instituto de telecomunicações, universidade de aveiro

Monostatic MIMO ISAC: a performance study using space frequency block coding

Leonardo Leyva Lamas – ESR8, 03/12/2021