

Research and Innovation action

NUMBER — 955387 — LEON-T

LEON-T

Low particle Emissions and IOw Noise Tyres



Deliverable No.	D7.2	
Deliverable Title	Website, project identity and promotional materials	
Dissemination	PU	
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Checked by	Etienne Parizet (INSA Lyon)	04/01/2022
Approved by	Juan J García (IDIADA)	10/01/2022
Issue date	10/01/2022	



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 955387

Revision history

REVISION	DATE	DESCRIPTION	AUTHOR (ORGANIZATION)
1	22/12/2021	First complete version of the deliverable	Thibaut Marin-Cudraz (INSA Lyon)
2	22/12/2021	First Revision	Etienne Parizet (INSA Lyon)
3	03/01/2022	Add mention of EU funding	Thibaut Marin-Cudraz (INSA Lyon)
4	04/01/2022	Final corrections	Etienne Parizet (INSA Lyon)

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1 - Introduction

This document contains [1] the description of the LEON-T project visual identity, [2] the website and [3] the visual promotional materials.

2 – Visual identity

2.1 – Project logo

The project logo (Fig.1) represents the visual identity of the project and was designed by Applus+ IDIADA. It shows the main objective of the project: development of cleaner tires. As such, the design is professional and minimal: composed with the project name with only one colored element, a blue tire, to symbolize clean and fresh air.



Figure 1: LEON-T logo.

2.2 – Visual identity for written and oral communications

Following the logo visuals, Applus+ IDIADA designed a template for Powerpoint presentations (see Appendix 1) and INSA Lyon designed a template for the deliverables of the project, used for this deliverable. The colors used are the same as the logo, assuring a visual homogeneity for all types of communication.

3 – Website

The website was designed by INSA Lyon in collaboration with an external contractor (<https://www.utopic.fr/>) and can be found at the following address: <https://www.leont-project.eu/>. In the same spirit as the logo design, the website is easy to navigate, whether with a computer or a smartphone. The news and Publications pages are designed to be dynamically updated, to increase the visibility and the audience of the website.

The different pages are described in this section. Each page can be accessed through the navigation bar, containing the project logo, on top of the website (Fig.2).



Figure 2: Navigation bar of the website.

The bottom part of the website is also common to all pages and shows the social networks used by the project, the EU funding, a reminder of the different parts of the website and the contact address (Fig.3).

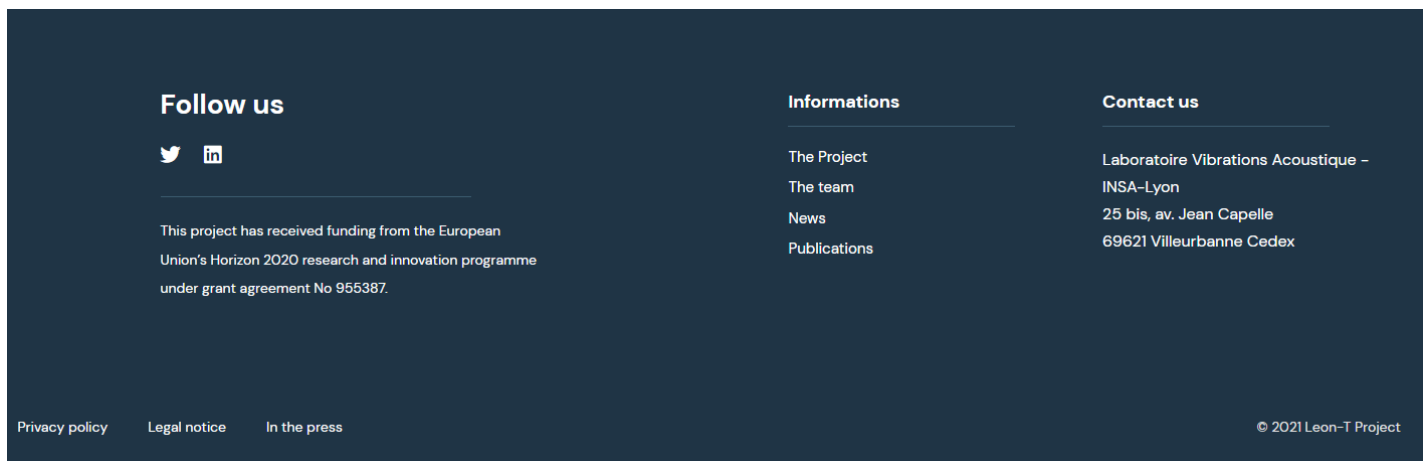


Figure 3: Website footnote.

3.1 – Home page

The home page welcomes the visitor and gives a summary of the website content. The upper part (Fig.4) contains the name of the project, the EU grant description, a summary of the project's main objectives and the logos of the partners.

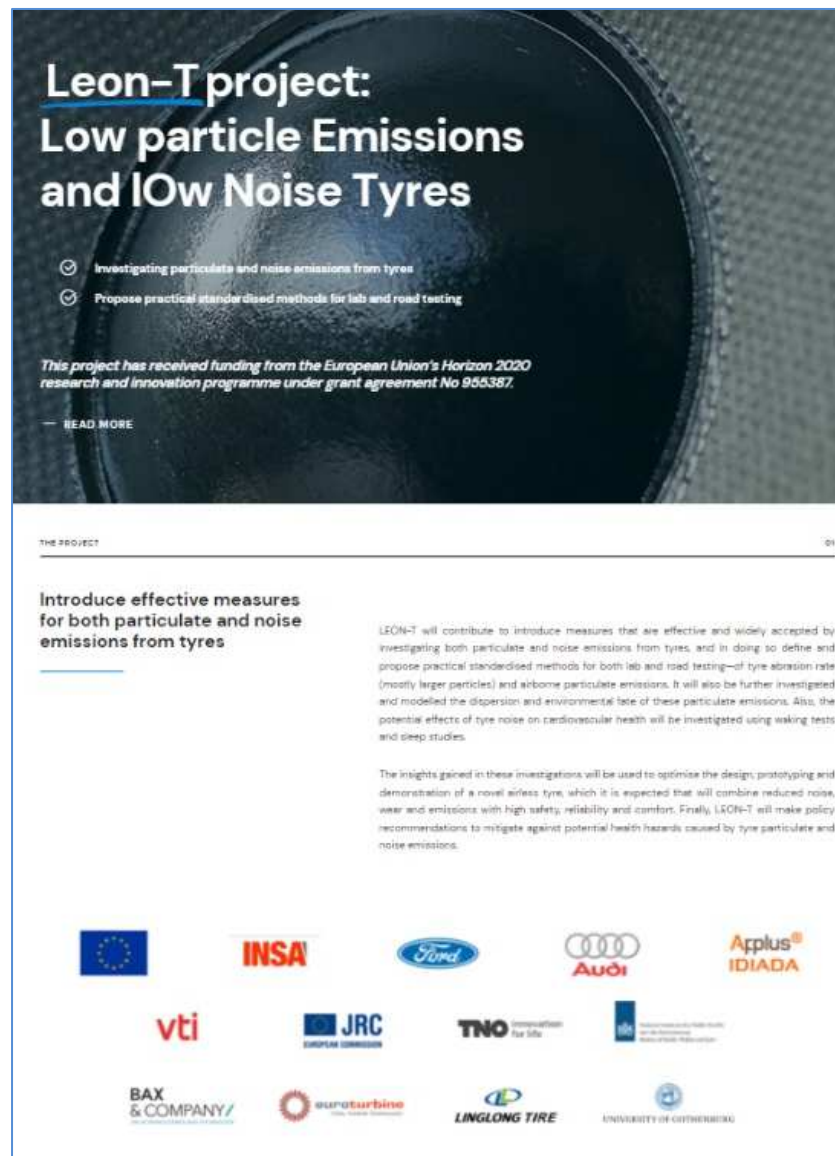



Figure 4: Upper part of the home page

The second part (Fig.5) indicates the six objectives of the project. The user can click on the 'Read more' mention below each objective to be redirected to the corresponding page (see 3.2). A summary of the three most recent news of the project appears below.


Increase the body of verified knowledge and evidence about the measurement of particle and noise emissions from tyres

The overall objective of LEON-T is to significantly increase the body of verified knowledge and evidence about (the measurement of) particle and noise emissions from tyres—and their associated effects on public health and well-being—in order to propose effective and efficient mitigating measures through regulation, labelling and tyre design.




Correlate particulate emissions lab and road tests

[READ MORE](#)




Standardisation of test setup for tyre abrasion rate measurement

[READ MORE](#)




Environmental dispersion of tyre-generated microplastics

[READ MORE](#)




Health effects of exposure to tyre-generated noise

[READ MORE](#)




Low-noise, low rolling resistance truck tyre

[READ MORE](#)



Mitigating policy measures

[READ MORE](#)




NEWS

03

Recent articles


[GO TO OUR BLOG](#)



Merry Christmas and happy holidays!

Merry Christmas and happy vacations from all LEON-T members! (some of the assets were drawn by CHENXIN from Pngtree.com)


[read more](#)



Tire noise recording at IDIADA

A big part of the LEON-T project is to understand the noise emitted by tires. For that, we need a

[read more](#)



Our website is now online

We are pleased to announce that our new website is now available online. On this platform you will find all

[read more](#)

Figure 5: Lower part of the home page.

3.2 – The "Project" page

The project

LEON-T aims to significantly increase the body of verified knowledge and evidence about (the measurement of) particle and noise emissions from tyres—and their associated effects on public health and well-being—in order to propose effective and efficient mitigating measures through regulation, labelling and tyre design.

DESCRIPTION

There is broad scientific consensus exposure to airborne particulates and/or nocturnal noise leads to adverse health effects. Particulate emissions and noise emissions generated by tyre-road interaction are suspected to contribute to such exposure for those living near busy roads, but current data is inconclusive as to how such emissions depend on characteristics of road surface and driving style. Furthermore, tyre wear particles disperse from their generation at the road surface through the environment in soil, water bodies and biota. However, quantification is currently lacking.

What is lacking is a body of evidence gathered through reproducible, standardised measurement methods allowing the introduction of justifiable, broadly supported legislative measures to limit particulate and noise emissions from tyres so as to reduce the risk they pose to public health and wellbeing. LEON-T addresses this hiatus.

LEON-T will furthermore use the knowledge gained to simulate, design, prototype and test innovative HGV wheels tyres that combine the best safety and performance characteristics of current tyres with the lowest noise emissions and wear.

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 955587.

Objectives

- Complete particulate emissions lab and road tests

ROAD NOISE
- Standardization of test setup for tyre abrasion rate measurement

ROAD NOISE
- Environmental dispersion of tyre-generated microplastics

ROAD NOISE
- Health effects of exposure to tyre-generated noise

ROAD NOISE
- Low-noise, low-rolling resistance truck tyre

ROAD NOISE
- Mitigating policy measures

ROAD NOISE

Figure 6: The main page of the project description.

Clicking on ‘The project’ in the navigation bar opens a page giving a general description of the overall goal of LEON-T and a mention of the EU funding. As the home page, the different six objectives are detailed in the following of the page (see Fig.6). A page is dedicated to each objective, with its title and summary (see Fig.7 to Fig.12).

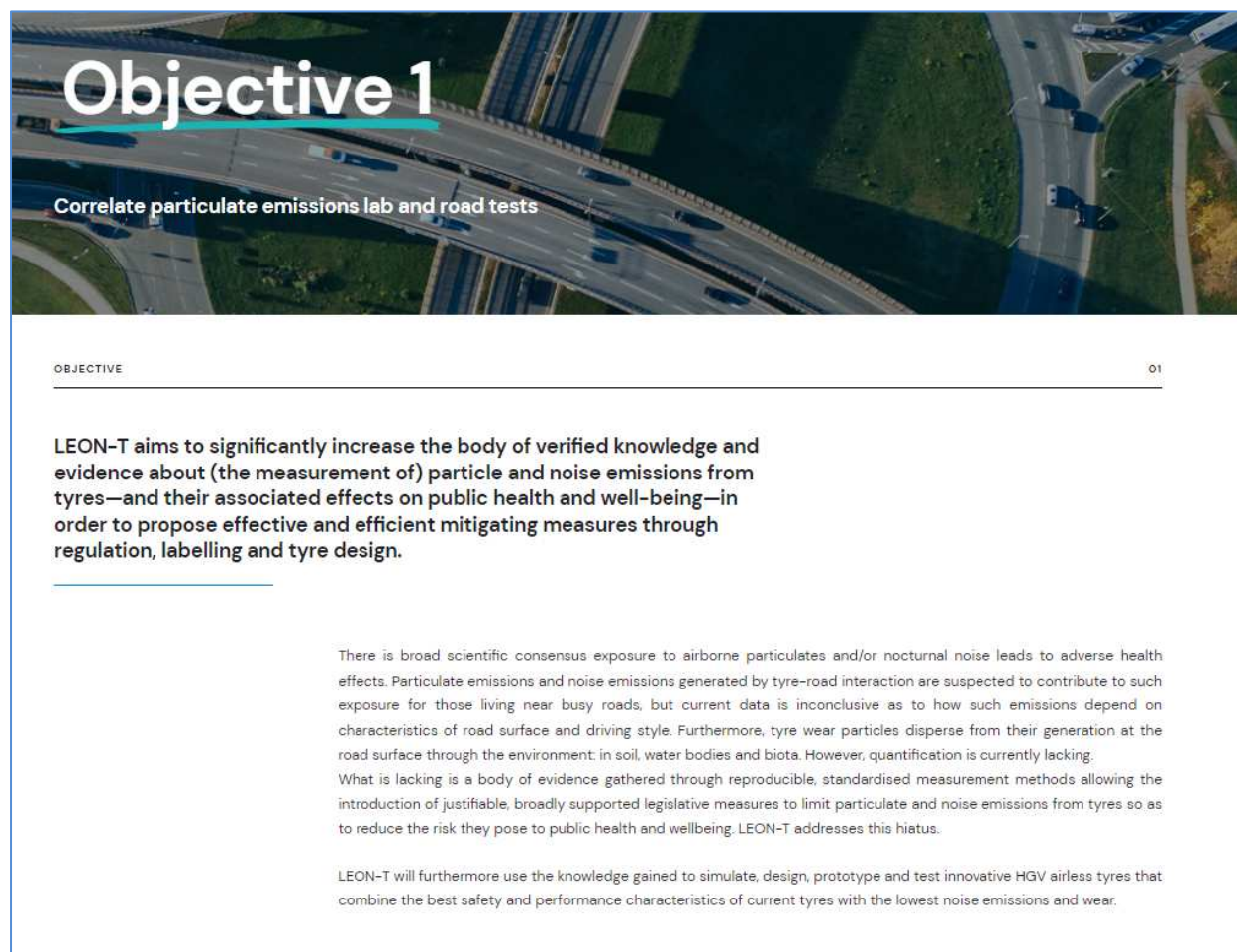


Figure 7: First objective page



Objective 2

Standardisation of test setup for tyre abrasion rate measurement

OBJECTIVE

O2

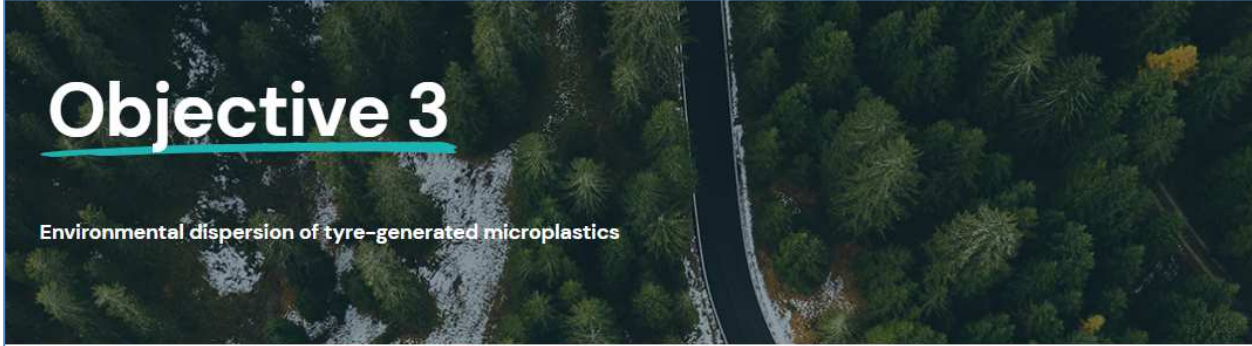
We will propose in detail a validated in-vehicle test setup and procedure for the determination of tyre abrasion rate, suitable for consumer-oriented labelling of tyres.

Currently passenger car tyres carry labelling providing the consumer with information about their safety performance in dry and wet conditions, and about their emitted noise. There is a desire to add an aspect related to particle emissions and their effect on the environment, with tyre abrasion rate the prime relevant variable. There is currently no standardised, representative method of determining tyre abrasion rate—which means tyre particle emissions cannot currently be regulated.

We will devise and validate a standardised, representative and practical method to measure tyre abrasion rate for the purpose of legal classification and labelling. For the first time, the tyre abrasion rate will be compared to particle emissions determined from the vehicle and laboratory-based measurements.

We will propose a standardised on-road test for tyre abrasion rate, in order to stimulate the adoption of European standards on non-tailpipe emissions. The proposed test method will be applied to several Light-Duty vehicle tyres and validated data will be generated. This will be an important first step to put forward standardisation. Results will be shared in conferences and peer-reviewed publications, as well as disseminated through the UNECE-PMP informal Working Group and the Tyre Industry Project (TIP).

Figure 8: Objective 2 page



Objective 3

Environmental dispersion of tyre-generated microplastics

OBJECTIVE 03

We will use the knowledge gained under objective 1 to calibrate and parametrise the existing SimpleBox4Nano (SB4N) model on tyre-generated microplastics dispersion in the environment, and will validate this model through field measurements.

Tyre-generated particles are a major source of microplastics found in the environment. Determining the dispersion of the particulate emissions in the environment beyond the immediate roadside—the “fate” of the emitted particle—is key to allow balanced legislative measures to limit the spread of these particulate emissions to be adopted.

Several models exist that estimate the dispersion of particulate matter from the road into the wider environment (air, soil, water). However, these models lack calibration data for the actual particle size distribution of the emitted particles and for the quantification of particles in the different environmental compartments.

We will use a novel sequential micro/nano-filtration technique to improve quantification of samples taken from different environmental compartments and will use the particle characterisation done within LEON-T to calibrate and parametrise the SB4N model.

We will use the calibrated and parametrised SB4N model to predict particle distributions at several locations and compare these predictions with field data.

Figure 9: Objective 3 page

Objective 4

Health effects of exposure to tyre-generated noise

OBJECTIVE

04

We will investigate the effects on cardiovascular health of exposure to (tyre-related) traffic noise for those living near busy extra-urban roads, taking into account psycho-acoustic qualities of the noise. Test markers will include physiological data (such as ECG, blood pressure) as well as metabolic data (blood analytes), and the tests will be performed in a sleep lab that mimics a home environment.

Exposure to noise—especially during sleep—has been shown to have a detrimental effect on stress, sleeping patterns and cardio-vascular health.

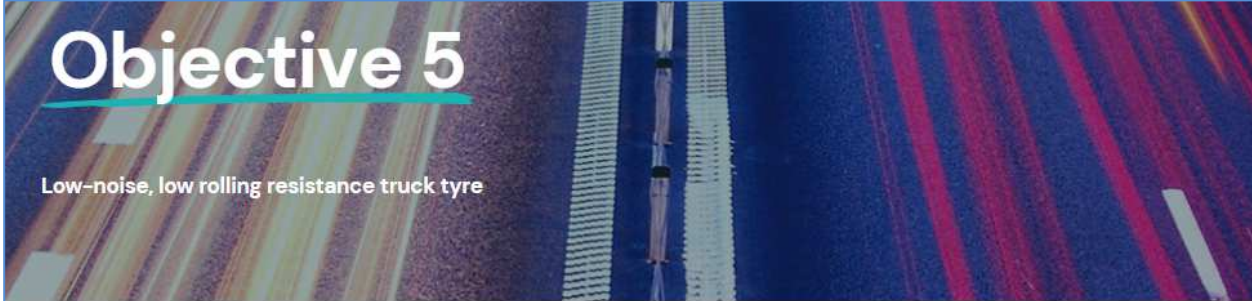
We will investigate the relationship between qualities of tyre-generated traffic noise and adverse health effects for those regularly exposed to this noise in their homes, through experimental sleep studies with healthy volunteers.

We will determine how noise levels and their timing, and tonality of noise impact physiological and metabolic markers for cardio-vascular health in experimental sleep studies with healthy volunteers subjected to representative synthesised noise. The use of physiological and metabolic markers provides a more reliable and reproducible outcome than reliance on self-reported sleep disturbances.

Tonality will be one of the psycho-acoustic parameters of the noise the study subjects will be exposed to—it has shown to impact the degree of annoyance in waking exposure studies and is a parameter that is influenced by tyre design.

We will determine effect sizes of test parameters with 95% confidence intervals. We can't yet quantify expected effect sizes since the experimental paradigm is brand new. Achievement of this objective will be evaluated by the acceptance for publication of a scientific paper on the study and its results by a well-regarded journal.

Figure 10: Objective 4 page



Objective 5

Low-noise, low rolling resistance truck tyre


OBJECTIVE 05

We will develop, prototype and test a truck tyre/wheel combination with noise emissions reduced by 6 dB(A) compared to current most popular truck tyre/wheel combinations. This will be an airless design, as such designs have shown great potential of significant noise and rolling resistance reduction in the past. Resulting prototypes will be compared to current common truck tyres in lab tests featuring standardised representative counter (road) surfaces.

For those living near roads with busy Heavy-Goods Vehicle (or Heavy Duty Vehicle) traffic the exposure to tyre-generated noise has been shown to cause health issues. Reducing truck tyre noise emissions reduces these hazards. However, noise must not be reduced at the expense of other important tyre characteristics such as rolling resistance, wear and safety. Optimisation of tread patterns and composition on a conventional pneumatic tyre is very unlikely to enable a drastic reduction of tyre noise. We will demonstrate a novel truck tyre/wheel design that has greatly reduced noise emissions, directly addressing impact 4 of the call. The demonstrated airless tyre serves as an example of the potential of the general class of airless tyres that allow a different set of compromises.

Our airless tyre will be prototyped and tested against a common conventional truck tyre in a laboratory setting (running against ISO and CNOSSOS reference surfaces), where we target to achieve a 6 dB(A) reduction in noise emissions while also showing reduced rolling resistance, as well as comparable dry and wet traction. We will also demonstrate the airless tyres on an Heavy-Goods Vehicle (or Heavy Duty Vehicle).

Figure 11: Objective 5 page



Objective 6

Mitigating policy measures

OBJECTIVE

06

LEON-T will recommend policy measures to limit the (potential) contribution of tyre-road interaction to microplastics in the environment, to airborne particulates exposure, and to traffic noise. Their recommendation will be public, and will be directed at the European Comission.

Revised noise limits are in the pipeline for both passenger and truck tyres, while discussion on tyre abrasion rate and particulate emissions is ongoing and limits may be set in the future. These limits must be chosen so as to strike a balance between possible risk to public health and well-being, financial considerations, and the public's civic freedom.

Legislative measures such as limits on tyre particulate emissions must be effective (actually decrease the targeted health risks), efficient (doing so in a way that represents a good cost/benefit ratio for society), and enforceable (based on reliable and reproducible methods). This means the chosen limits must be based on a solid body of evidence, which the methods arrived at in LEON-T will allow.

We will create a policy recommendation document directed towards the European Comission suggesting suitable methods, limits and estimated impact (cost/benefit comparison) for policies to mitigate against the (potential) contribution from car tyres to microplastics pollution stemming, to airborne particulate exposure, and to exposure to traffic noise along extra-urban roads.

The proposed policy measures will be evaluated and selected under a carefully performed cost-benefit analysis using the most updated data, taking into account the life-cycle costs and expected societal and environmental benefits of applying different policy scenarios – to the best of available knowledge – following the European Comission Better Regulation Toolbox).

Figure 12: Objective 6 page

3.3 – The "Team" page

The page describing the team is divided in two parts: the first part contains the main contacts, with their photo, name, affiliation and email contact address (Fig.13). The second part contains a table with all other participant of the project with the names, roles in the project and affiliation (Fig.14).
















Main contacts	
	<p>Dr.-Ing. Juan J. Garcia IDIADA</p> <p>jgarcia@idiada.com</p>
	<p>Dr. Ing. Sebastian Gramstad AUDI</p> <p>sebastian.gramstad@audi.de</p>
	<p>Dr. Marcel Mathissen PCRD</p> <p>m.mathissen@pcrd.com</p>
	<p>Dr. Theodoros Grigoratos JRC</p> <p>theodoros.grigoratos@ec.europa.eu</p>
	<p>Dr. Ulf Sandberg VTI</p> <p>ulf.sandberg@vti.se</p>
	<p>Dr. Anders Genell VTI</p> <p>anders.genell@vti.se</p>
	<p>Dr. Michael G. Smith University of Gothenburg</p> <p>michael.smith@chem.gu.se</p>
	<p>Pr. Kerstin Persson Waye University of Gothenburg</p> <p>kerstin.persson-waye@chem.gu.se</p>
	<p>Pr. Etienne Parizet INSA Lyon</p> <p>etienne.parizet@insa-lyon.fr</p>
	<p>Dr. Thibaut Marin-Cudraz INSA Lyon</p> <p>tthibaut.marin-cudraz@insa-lyon.fr</p>
	<p>MSc. Francesco Pizzocolo TWC</p> <p>francesco.pizzocolo@twc.it</p>
	<p>MSc. Ing. Marcos Ilerides Bask Company</p> <p>m.ilerides@baskcompany.com</p>
	<p>Dr. Joris T K Quik RNM</p> <p>j.t.k.quik@rnm.nl</p>
	<p>Hans-Erik Hansson Easterutine</p> <p>hans-erik.hansson@easterutine.com</p>
	<p>Timm Flebbe LingLong</p> <p>tim_flebbe@linglong.cn</p>

Figure 13: Main contacts of the project.

Other participants		
Name	Role in the project	Partner
Lujan Carlos	Technical	IDIADA
Antonio Pérez	Technical	IDIADA
Rosa Delgado	Technical	IDIADA
Joan Puig	Technical	IDIADA
Imanol Larraudogoitia	Technical	IDIADA
Xavier Montane	Technical	IDIADA
Monica Pla	Administration	IDIADA
Javier Iturbe	Technical	IDIADA
Elisenda Fabrega	Legal	IDIADA
Robert Armengol	Technical	IDIADA
Robert Waninger	Technical	Audi
Ralf Schweizer	Technical	Audi
Johann Harrer	Technical	Audi
Bo Habermann	Administration	Audi
Daniel Patnaik	Legal	Audi

Figure 14: Beginning of the table listing all of the participant in the project.

3.4 – The "News" page

The "News" page gives the most recent news on the left part (Fig.15). The news allow reader to know everything happening during the project: from general news to experiments, events, presentations given in conferences, ... Each news will be relayed in social media. The right part contains the different categories and tags that can be used to select only the news of a given type.

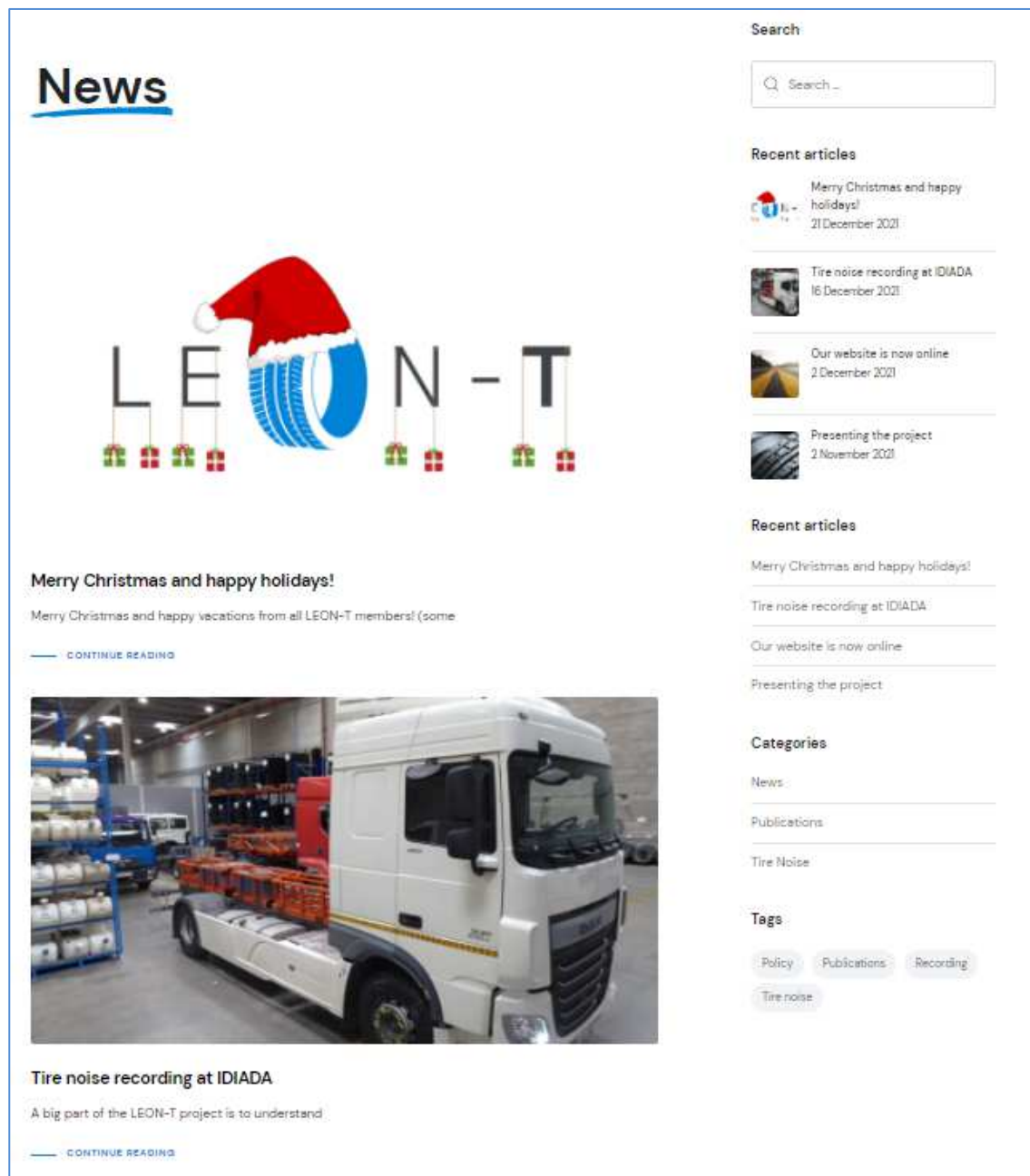


Figure 15: The news page.

3.5 – The "Publications" page

The "Publications" page is organized in the same way as the News page (Fig.16). Instead of news, this page will contain the list of publications (general article, scientific papers, oral presentation, posters, ...) generated through the life of the project. Each publication will also be relayed on social media.

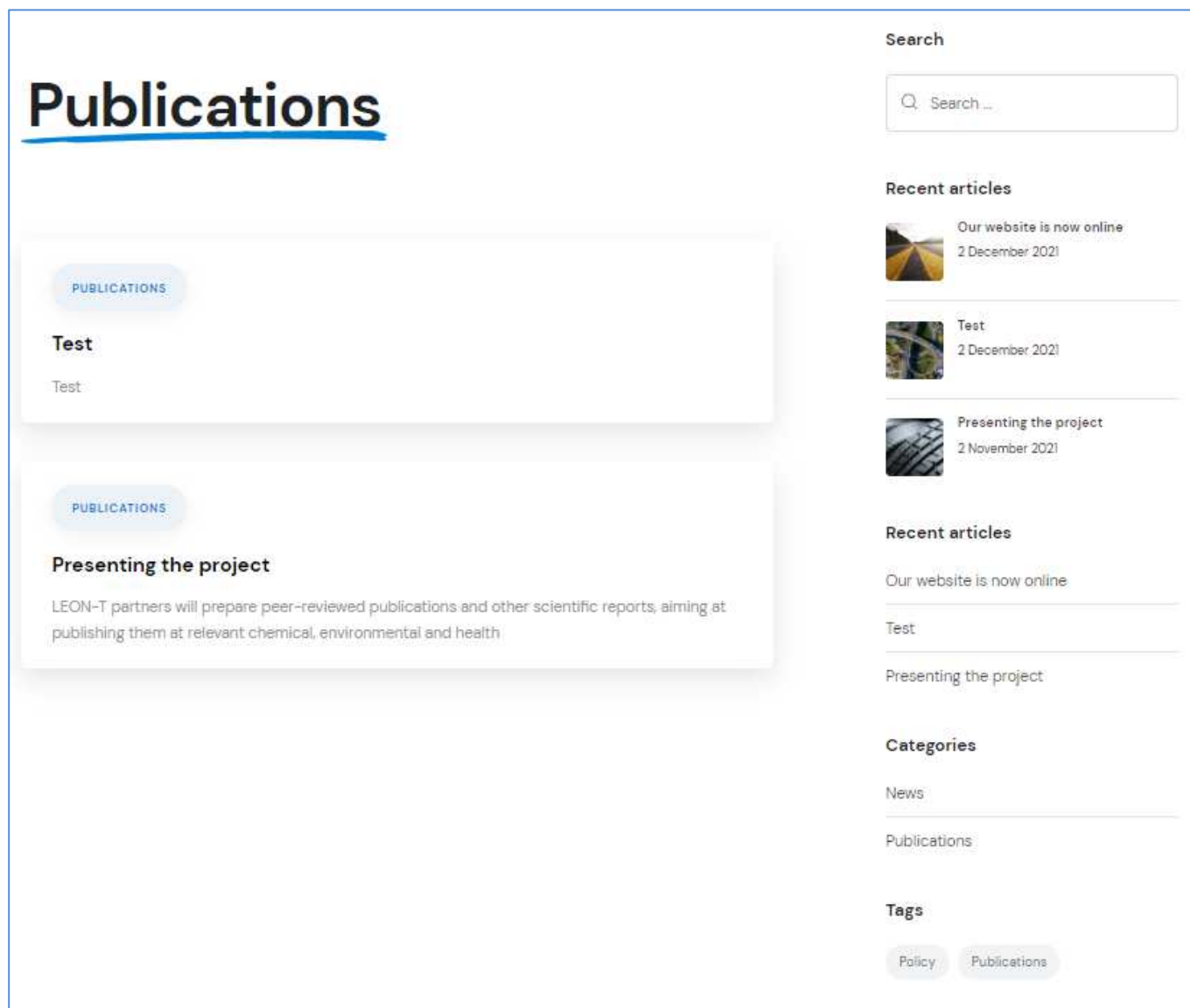
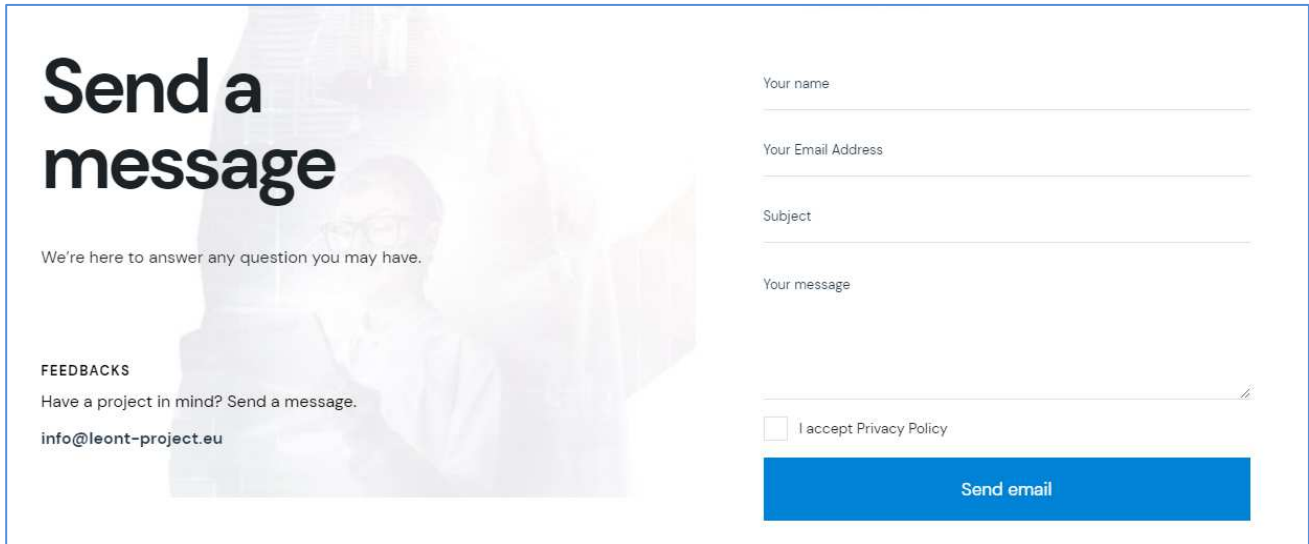


Figure 16: Publications page.

3.6 – The Contact form

The contact form (Fig.17) allows people to ask for general information on the project and each demand will be sent to contact@leont-project.eu.



Send a message

We're here to answer any question you may have.

FEEDBACKS
Have a project in mind? Send a message.
info@leont-project.eu

Your name

Your Email Address

Subject

Your message

☐ I accept Privacy Policy

Send email

Figure 17: The Contact form.

4 – Other promotion materials

A twitter account (Fig.18), a LinkedIn group (Fig.19) and a *Researchgate* lab (Fig.20) were created to promote and increase the visibility of the website.

Up to now, no other promotional material has been designed. This can be done later, depending on the usefulness of this material. Because of the sanitary situation, most of the meetings and GA are currently done online, which reduces the need for promotional material.

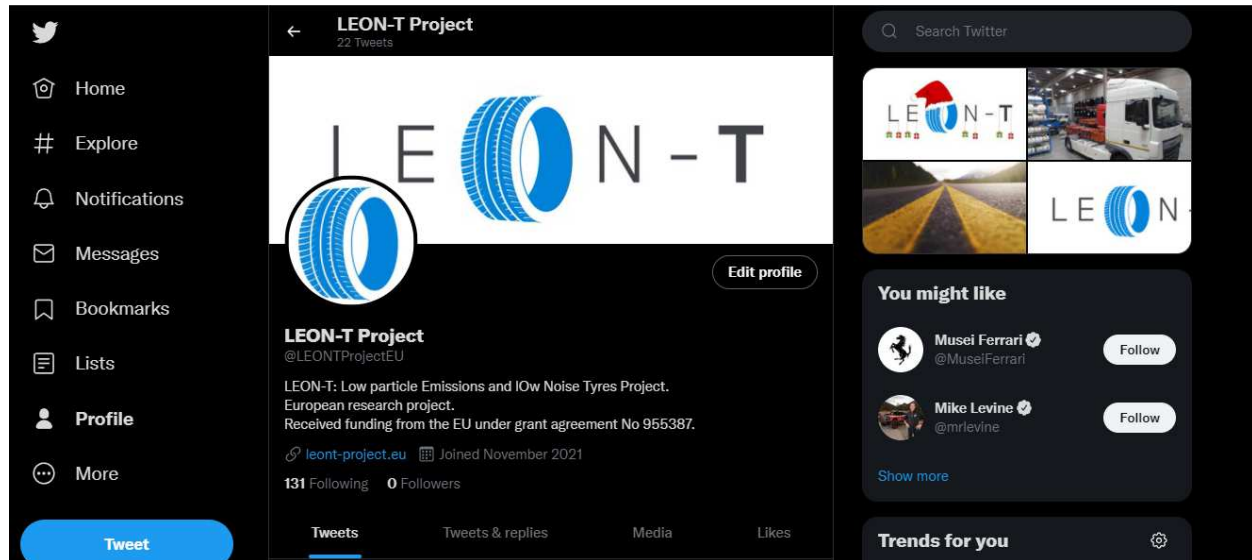


Figure 18: LEON-T Twitter account

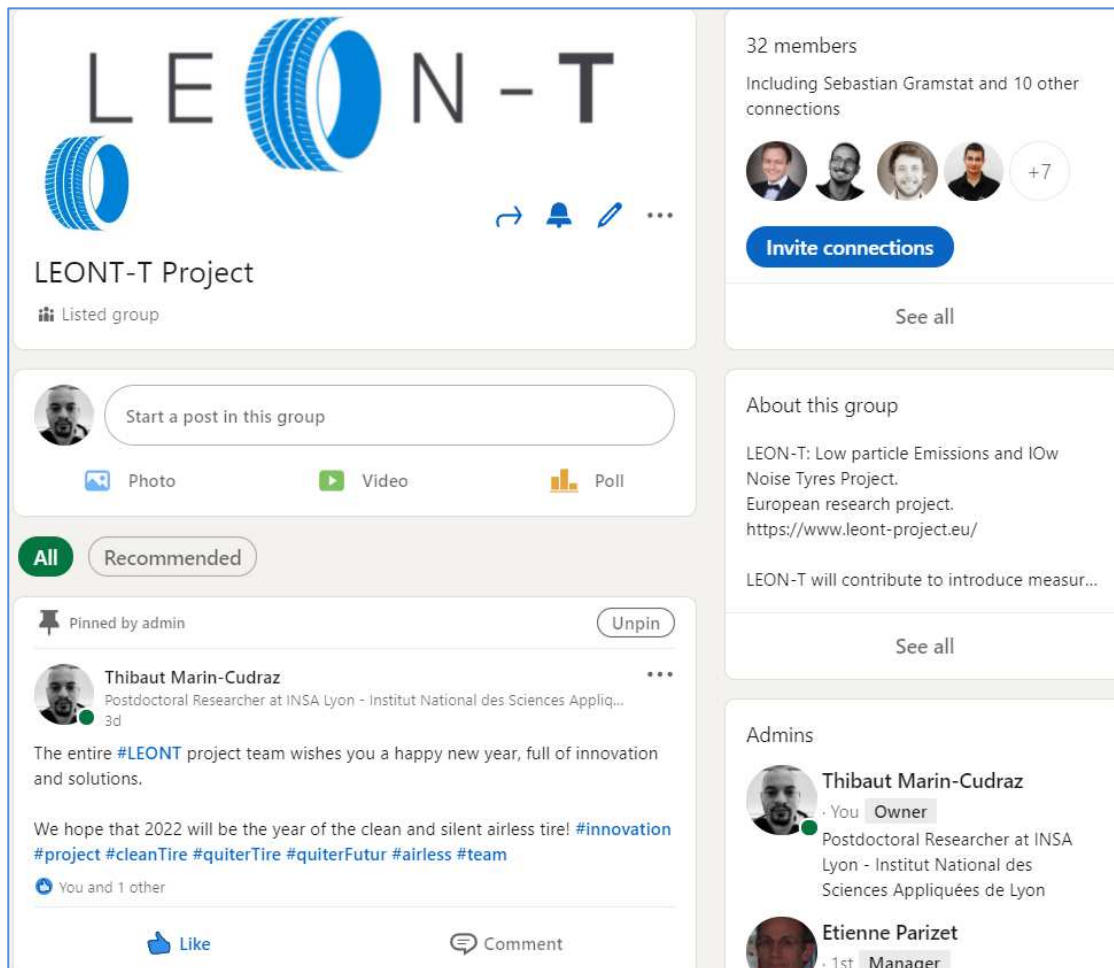


Figure 19: LEON-T LinkedIn group

Lab

LEON-T Project

Institution: Institut National des Sciences Appliquées de Lyon
Department: Laboratory of Vibrations and Acoustics (LVA - EA 677)

Overview


Add members

Options

About the lab

Low particle Emissions and IOw Noise Tyres (LEON-T) aims to significantly increase the body of verified knowledge and evidence about (the measurement of) particle and noise emissions from tyres—and their associated effects on public health and well-being—in order to propose effective and efficient mitigating measures through regulation, labelling and tyre design.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 955387.




Lab head

Thibaut Marin-Cudraz


Institut National des Sciences App...

Department
Laboratory of Vibrations and Acoustics (LVA - EA 677)

View profile



Introduce yourself
Showcase your research by adding a short introduction about yourself and your interests.



Do you have a job vacancy in your lab?

Figure 20: LEON-T Researchgate lab

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Appendices

Appendix 1: Powerpoint Template



Click to edit Master title style

Click to edit Master subtitle style



Click to edit Master title style

Click to edit Master subtitle style

Title

L E  N - T**Subtitle**

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Subtitle

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Subtitle

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Text	Text

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Title

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Subtitle

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Subtitle

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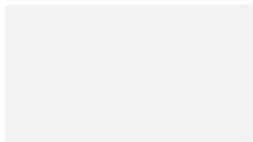


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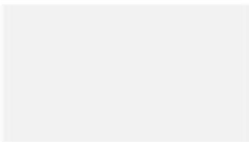
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Title

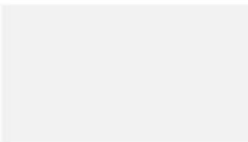
LE  N - T



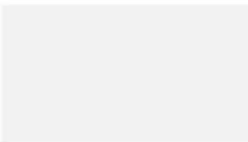
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Text

10