



Dear Readers,

We are happy to announce the release of our second SanDAL newsletter.

During the last months, the SanDAL team has been busy with setting up the basis for the research group in Mathematical Statistics and Data Science (MS&DS) at the University of Luxembourg focusing on the following two scientific areas:

1. *High-Dimensional Data Analysis*
2. *New Mathematical Tools for Contemporary Statistics*

In this newsletter you will learn about the advancement of project activities and other initiatives taken by our motivated and dedicated SanDAL team :

- ❖ Development of the Strategic Research Programme
- ❖ Organisation of Scientific Seminars
- ❖ Development of Postgraduate Training Programmes
- ❖ Organisation of the 1st SanDAL Winter School

To be up to date with the latest project news and forthcoming events, visit our SanDAL website at: <https://sandal.uni.lu>

Meet the SanDAL Team



Prof. Dr. Yannick Baraud

Alexandre Lecestre

Juntong Chen

Guillaume Maillard

ERA-Chair Holder

Doctoral researcher

Doctoral researcher

Post-doctoral researcher

Université du Luxembourg
Faculty of Science, Technology and Medicine
[Department of Mathematics](#)

Maison du Nombre
6, Avenue de la Fonte
L-4364 Esch-sur-Alzette





Strategic Research Programme

The SanDAL project produced the Strategic Research Programme for the ERA Chair in Mathematical Statistics and Data Science at the University of Luxembourg.

The Strategic Research Programme document defines the goals and specific objectives to assess the needs of the institute and to maximise its overall scientific excellence in the MS&DS research sub-topics.

The SanDAL Strategic Research Programme is available on the [Publications](#) webpage and you will find details about:

- ❖ Strengths and areas for improvement
- ❖ SanDAL research priorities
- ❖ Guidelines for strategic publications
- ❖ National and European (EU) funding opportunities
- ❖ Dissemination and Exploitation Potential

Strategic Research Programme



SanDAL

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Project seminars

As presented in our previous newsletter, the ERA-Chair Holder Dr. Yannick Baraud, has launched regular seminars aiming to attract experts to give lectures on topics relevant to Mathematical Statistics, Probability and Data Science. These SanDAL seminars have been integrated into the existing "Probability and Statistics Seminar". The SanDAL team is inviting you to visit the seminar serie's [webpage](#).

With the Covid-19 situation, we experienced some delays in the organisation of these seminars but we are happy to announce the next SanDAL seminars:

- ✓ [Ismael Castillo](#) (Laboratoire de Probabilités, Statistique et Modélisation - Paris) will make his presentation on "Supremum-norm inference with Bayesian CART" via Webex on the 15/10/2020.
- ✓ [Hélène Halconruy](#) (Télécom ParisTech) will make her much anticipated presentation "From Stein's method to Stein-Malliavin-Dirichlet structures: a discrete point of view" on the 17/12/2020.

We will publish soon additional information about their respective sessions on the SanDAL website as well as the "Probability and Statistics Seminar" website.





SANDAL Postgraduate Training Programmes

One of the objective of the SANDAL project and the ERA Chair team is to develop competitive and high-level postgraduate training programmes for master students and doctoral candidates within the Mathematics Research Unit at UL .

PhD Training Programme

The Doctoral School of Science and Engineering (DSSE) of the Faculty of Science, Technology and Medicine (FSTM) offers, since 2016, a Doctoral Programme in Mathematics and Applications (DPMA), which provides research training at an internationally competitive level in various mathematical disciplines, such as: Algebra and Number Theory, Geometry and the Mathematical Theory of Quantisation, Harmonic and Geometric Analysis, Probability Theory and its Applications, Mathematical Finance, Mathematical Modelling.

Through the existing a Doctoral Programme in Mathematics and Applications DPMA of the Doctoral School of Science and Engineering, Prof. Baraud was able to offer a PhD course on “Mathematical Statistics” (30 teaching units) during the winter semester 2019-2020.

Master's Training Programme

The ERA Chair Holder also made good progress on two Masters which will be offered by the University during the project:

1. *Master in Data Science:*

The Master will offer courses in the field of Gathering, preparing and exploring data, Transforming data into databases, Computing with data, Visualizing and presenting data, Modeling data, Data Science and Data ethics . The detailed description of the MAster of Data Science Of the University of Luxembourg (MADSOUL) has passed the validation step of the Faculty Council (voted and accepted unanimously on 05/06/2020). MADSOUL is expected to start as of September 2021.

2. *Master in Actuarial Science:*

The Master will offer a professional master's degree that will meet the needs of the Luxembourg actuarial market while being in line with the thematics of the Actuarial Association of Europe. On the 10th of September 2020, SANDAL organised an event dedicated to students interested in the new Master Programme. The event consisted in bilateral discussions, round tables and quality presentations from Prof. Michel Denuit (UC Louvain) and Prof. Olivier Lopez (Union Professionnelle des Métiers de la Communication).





1st SanDAL Winter School



The first SanDAL Winter School on Mathematical Statistics will be organised by the University of Luxembourg from the 7th to the 11th of December 2020. This school is aimed at young researchers (PhD students and early postdocs) and practitioners alike and offers an excellent opportunity to learn about recent and important developments in mathematical statistics directly from leaders in their respective fields, such as:

- **Non-parametric Inference under Local Differential Privacy**
Cristina Butucea (CREST ENSAE, Université ParisTech)
- **Principal Component Analysis: some recent results and applications**
Karim Lounici (CMAP-Ecole Polytechnique)
- **Statistical inference of incomplete data models to analyse ecological networks**
Stéphane Robin (AgroParisTech/INRA/univ. Paris Saclay & Muséum National d'Histoire Naturelle)

The registration to the Winter school is free of charge but mandatory. The event will be organised remotely using Webex app. Visit the [Event webpage](#) and register to our first SandAL Winter School.

Upcoming events

The ERA Chair team is currently organising a lot of scientific events in addition of the Winter School. We frequently update the [Event webpage](#) with the latest information about our scientific events such as:

- ❖ **Workshop on Data Science** - 13-14 October 2020: experts will present how they deal with data and why data sciences are beneficial for different application areas such as economics, physics, life sciences, etc.
- ❖ **International Conference on Statistics and Related Fields** - 12-16 July 2020: with international plenary speakers from the USA, UK, China, Germany and the Netherlands.

<https://sandal.uni.lu/>

