



# Benford's Law Conference

10-12 July 2019 - Stresa, Italy



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# Call for papers

# Motivations

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**Acknowledgements:** This research line is conducted under the Research Framework Programme of the EU. More specifically, it is motivated by the Hercule III Anti-fraud Programme of the European Union, which protects the EU's financial interests by supporting actions to combat irregularities, fraud and corruption affecting the EU budget. Hercule III is managed by the European Anti-Fraud Office, [OLAF](#).

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<https://ec.europa.eu/jrc>

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The contrast of fraud in international trade, and the corresponding protection of national budgets, are crucial tasks of modern economic regulations. For instance, import operations have a significant weight in the budget of the European Union (EU), through tax revenues that EU Member States receive from import duties, excise duties and VAT. Huge losses may thus occur when the value of imported goods is manipulated and under-reported. Monitoring international trade transactions is also important for the fight against criminal activities, as they can be used for illegal capital movements and money laundering.

Many anti-fraud techniques fall in the class of unsupervised statistical methods, with outlier detection and (robust) cluster analysis playing a prominent role. The rationale is that the bulk of international trade data is made of legitimate transactions, possibly clustered due to unknown latent factors, and major frauds may stand out as

highly suspicious anomalies. In this conference we focus on a different approach that has attracted considerable interest in many anti-fraud contexts, but whose potential for international trade is largely unexplored. The approach is based on testing conformance to the Benford's Law (BL), which relies on the intriguing fact that in many natural and human phenomena the leading – i.e. the first significant – digits are not uniformly scattered, as one could naively expect.

The general goals of the conference are to provide insight on the suitability of the BL for fraud detection, discuss the state of the art in the field and reflect on new BL-based procedures, for example goodness-of-fit testing of the law within a contamination model where frauds generate outliers. The practical target is to arrive at conformance tests of wide applicability that could be taken seriously by anti-fraud users, with empirical properties closely matching the expected nominal ones, and with good

inferential ability both under the null hypothesis of no contamination and when frauds are present.

The conference has a cross-domain dimension and will debate these and other research themes without focusing necessarily on international trade. On the contrary, the participants will have the opportunity to discuss the applicability of statistical tools derived from the BL to major anti-fraud problems arising in other financial contexts. The conference will also discuss integration of BL-based fraud

signals with those obtained under alternative, and more established, statistical approaches based on robust methodologies and business analytics.

#### Conference themes:

- **The challenges of fraud detection and Benford's solution**
- **The mathematics and statistics of Benford's Law**
- **Integration of different approaches to fraud detection**
- **Applications**

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## Scientific Committee

**Domenico Perrotta,**

European Commission, Joint Research Centre, Ispra, Italy (Chair)

<https://ec.europa.eu/jrc/en/person/domenico-perrotta>

**Andrea Cerioli,**

University of Parma, Italy

<https://en.unipr.it/ugov/person/18251>

**Lucio Barabesi,**

University of Siena, Italy

<http://docenti-deps.unisi.it/luciobarabesi/>

## List of confirmed keynote speakers to date

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**Theodore Hill**

<http://people.math.gatech.edu/~hill/>

**Steven Miller**

[https://web.williams.edu/Mathematics/sjmiller/public\\_html/welcome.html](https://web.williams.edu/Mathematics/sjmiller/public_html/welcome.html)

**Mark Nigrini**

<https://forensics.wvu.edu/faculty-and-staff/adjunct-faculty/mark-nigrini>

**Alex Kossovsky**

<https://www.worldscientific.com/worldscibooks/10.1142/9089>

**Marco Riani**

<http://www.riani.it/>

**Marco De Andreis**

<https://www.adm.gov.it/portale/-/de-andreis-mar-1>

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## Contributed talks

The conference programme will include a few slots for contributed talks.

Proposals should be sent to Lorena Marcaletti ([lorena.marcaletti@ec.europa.eu](mailto:lorena.marcaletti@ec.europa.eu)) by **May 1st at the latest** (early submission is encouraged).

Each proposal should include a short abstract (max 2 pages) of the talk, using the template at this link:

[https://ec.europa.eu/jrc/sites/jrcsh/files/benford\\_template.zip](https://ec.europa.eu/jrc/sites/jrcsh/files/benford_template.zip)

**Decision on the proposal will be notified two weeks after submission.**

# Registration and logistics

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**Title:** Benford's Law for fraud detection

**Subtitle:** Foundations, methods and applications

**Dates:** 10-12 July 2019

**Venue:**

Hotel La Palma, Stresa, Italy, <https://www.hlapalma.it/en/>

**Local organizers premises:**

European Commission, Joint Research Centre, Ispra, Italy:

<https://ec.europa.eu/jrc/en/about/jrc-site/ispra>

Attendance to the workshop is free of charge and limited to a maximum of 120 participants, on a first-come-first-served basis, therefore registration is **COMPULSORY**.

Registration includes:

- attendance to the workshop,
- workshop material,
- lunches and coffee breaks,
- bus transfer from/to Malpensa airport according to the time schedule that will be made available on the conference registration page

Rooms have been pre-booked in hotels close to the conference venue.

**Link to the registration website:**

<https://web.jrc.ec.europa.eu/remjrc/screen/meeting/1568/registration-form>

**Registrations will close on 17 May 2019.**

**Information about logistics and registration:**

[JRC-I-Events-Admin@ec.europa.eu](mailto:JRC-I-Events-Admin@ec.europa.eu)

# Provisional Programme

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**Wednesday, 10 July 2019:**

9:00 – 10:00	Registration
10:00 – 10:30	Opening
10:30 – 18:00	Conference: Keynote speakers and invited talks

**Thursday, 11 July 2019:**

09:30 – 18:00	Conference: Keynote speakers and invited talks
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**Friday, 12 July 2019:**

09:30 – 12:50	Conference: Keynote speakers and invited talks
12:50 – 13:00	Closure

The detailed scientific programme of the conference will be available in June on the conference web page:

<https://ec.europa.eu/jrc/en/event/workshop/benfords-law-conference-call-papers>

# Partners

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Università degli Studi di Parma



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DI PARMA**

<https://en.unipr.it/>

Università di Siena  
Department of Economics and  
Statistics



<https://www.deps.unisi.it/en/>

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