



European coordinated research on long-term ICT and ICT-based scientific challenges

Call 2021

Nano-Opto-Electro-Mechanical Systems (NOEMS) for ICT

and

Foundations for Misbehaviour Detection and Mitigation Strategies in Online Social Networks and Media (OSNEM)

Deadline: 17th of January 2022



The CHIST-ERA consortium has created a common funding instrument to support European research projects that engage in long-term research in the area of ICT and ICT-based sciences. Through this instrument, the national/regional funding organisations of CHIST-ERA support and join the Pathfinder programme of the European Innovation Council. By launching joint European calls, they can support more diverse research communities, who are able to tackle the most challenging and novel research topics. Each year, CHIST-ERA launches a call for research projects in two new topics of emergent scientific importance.

Funding Organisations in the Call 2021



CHIST-ERA is supported by the Pathfinder programme of the European Innovation Council

Disclaimer: the information in this leaflet is provided as is and no guarantee or warranty is given that the information is fit for any particular purpose. The user therefore uses the information at its sole risk and liability.

Belgium (FNRS) • Florence Quist • international@frs-fnrs.be

Belgium (FWO) • Toon Monbaliu • eranet@fwo.be

Bulgaria (BNSF) • Milena Alexandrova • aleksandrova@mon.bg

Czech Republic (TACR) • Aneta Lizancová • Aneta.Lizancova@tacr.cz

Estonia (ETAg) • Maarja Soonberg • Maarja.Soonberg@etag.ee

Finland (AKA) • Katrine Mahlamäki • Katrine.Mahlamaki@aka.fi

France (ANR) • Anna Ardizzoni • anna.ardizzoni@anr.fr

Ireland (IRC) • Rose Sweeney • rsweeney@research.ie

Israel (InnovationAuth) • Rachel Loutaty • rachel.l@iserd.org.il

Lithuania (LMT) • Laura Kostelnickienė • laura.kostelnickiene@lmt.lt

Poland (NCN) • Anna Wieczorek • anna.wieczorek@ncn.gov.pl

Slovakia (SAS) • Zuzana Panisová • panisova@up.upsav.sk

Spain (AEI) • Watse Castelein • era-ict@aei.gob.es

Switzerland (SNSF) • Ahmad Zein Assi • chistera@snf.ch

Taiwan (MOST) • Ching-Mei Tang • cmtom@most.gov.tw

Turkey (TUBITAK) • Özlem Gezici Koç • Ozlem.GeziciKoc@tubitak.gov.tr

United Kingdom (EPSRC) • Maryam Crabbe-Mann • maryam.crabbe-mann@epsrc.ac.uk

Call information:

Anna Ardizzoni (ANR) anna.ardizzoni@anr.fr

CALL 2021 TOPICS

Nano-Opto-Electro-Mechanical Systems (NOEMS) for ICT

The combination of optical, mechanical and electronic elements into a single platform allows the manipulation of light via mechanical manipulation and electronics. In reducing the size of these metastructures (to the nanometer range) the strength of the interactions are enhanced and power consumption reduced as the mechanical elements require less power than electro-optic and thermo-optic effects, for example. Specifically, it is the exploitation of the piezo-electric and flexible states of light (intensity, phase, polarization and orbital angular momentum) that brings about a mechanical response which reduces the power consumption. Integration of NOEMS with processing chips potentially opens up applicability of NOEMS to various areas such as information carrying, communication, sensing and computing.

Target Outcomes

i) Miniaturisation of NOEMS and integration with circuits on a single device; **ii)** Development of multi modal and multi physical capabilities; **iii)** Improvement of electro-mechanical energy conversion efficiency; **iv)** Modelling of the NOEMS at the nanoscale taking into account Van der Waals forces; **v)** Development of metamaterials/metasurfaces for integration of NOEMS components; **vi)** Development of arrays of NOEMS for computing architectures; **vii)** Development of testbeds; **viii)** Advanced fabrication technologies, exploiting silicon or heterogeneous materials to aid integration.

Foundations for Misbehaviour Detection and Mitigation Strategies in Online Social Networks and Media (OSNEM)

The pervasive nature of internet use, in particular social networking and media has come with immense benefits but also some drawbacks to society. The sharing of culture, experiences and news has increased awareness and understanding across different societal groups. However, these same networks can be used to spread misinformation, low quality news and fake news. Misbehaviour from bots and/or anonymous users can impact political outcomes, social inequalities, and health. This is increasingly spread beyond the text format, and now includes all types of media; image, video and audio. The majority of detection methods and mitigation strategies are only applicable to text and cannot be applied to other media types. This challenge is also exacerbated by the multi-platform and multi-language nature of social networks or media.

Target Outcomes

i) Identify most impactful types of misbehaviour (possibly on purpose) and emerging trends; **ii)** (Near) real time, robust and scalable technologies to detect misbehaviours; **iii)** Address multimodality (i.e. text, video, audio and images), tackling multiple platforms where possible; **iv)** Development of AI-based (incl. explainable AI) and Natural Language Processing technologies where necessary; **v)** Availability and sharing of (multilingual) databases and benchmarks.

*CHIST-ERA projects should be of a **FET-like** nature and contribute to the development of the European research and innovation capacity in the technology domain of the call topics. They should explore collaborative advanced interdisciplinary science and/or cutting-edge engineering with the potential to initiate or foster new lines of technology and help Europe grasp leadership early on in promising future ICT and ICT-based areas with potential for significant impact in the long term.*

***Open access** to publications and research data, is a key asset to leverage on research funding. Applicants are encouraged to consider approaches promoting open access starting from the project preparation stage.*

*To widen participation throughout Europe, applicants are encouraged to include partners from the **Widening Countries** in the call: Bulgaria, Czech Republic, Estonia, Lithuania, Poland, Slovakia and Turkey.*

SELECTION PROCEDURE

This call follows a one-stage submission and evaluation procedure.

The coordinator prepares a joint proposal for the consortium, using the template available on the CHIST-ERA website. The form is submitted using the electronic submission system of CHIST-ERA.

Consortium Eligibility

Projects have a duration of either 24 or 36 months.

The following criteria must be met:

- The consortium is **international**: It must have a minimum of three partners and partners must be located in at least three distinct countries.
- The consortium is **balanced**: At most 60% of the total funding may be requested by partners from one country.

The consortium needs to be **focused**, that is, the proposed research must have a clearly defined goal. Consortia should therefore normally contain between three and six partners.

Research groups who are not eligible to receive funding from any organisation participating in the concerned topic may be part of a consortium if they are able to secure their own funding. Third-party funding is not considered for the criteria above. The consortium coordinator must be supported by a funding organisation participating in the topic.

Evaluation and Funding Decision

The proposals are evaluated by an international panel according to the following criteria: **Relevance to the Topic, S/T Quality, Impact** and **Implementation**.

Based on the ranking and of available funding, CHIST-ERA proposes a list of projects to be funded. The final decision remains with the funding organisations.