

Research

Executive Agency

FET Open: main features and evaluation process

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ECML-PKDD in Skopje, Sept. 18th 2017



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FET vs H2020







FET: Novel ideas for radically new technologies visionary thinking ... but very concrete mission

€ 2.6 billion to initiate radically new lines of technologies



- collaborative research
- extend Europe's capacity for advanced and paradigm-changing innovation
- foster scientific collaboration across disciplines on radically new, high-risk ideas





FET: three complementary lines of action





FET-Open RIA: supporting early-stages of research to establish a new technological possibility

- Collaborative projects up to € 3 Mio funding (indicative)
- **O** Single step submission, '1+15' pages
- **O** Early stages of R&I on any new technological possibility
- O Proposals evaluated and ranked in one single Panel
- **O Scope defined by FET gatekeepers**





































Pool of (excellent) Experts



A few months before the call deadline

- We identify gaps in the scientific disciplines covered by the previous group of expert evaluators
- We identify high-quality experts to fill those gaps (EMI, publication databases, h-factor, etc.)

Research Executive Aaencv

 We Contact these new experts to check their availability

https://ec.europa.eu/research/participants/portal/ desktop/en/experts/index.html





Independence: They are evaluating in a personal capacity. They represent neither their employer, nor their country!

Impartiality: They must treat all proposals equally and evaluate them impartially on their merits, irrespective of their origin or the identity of the applicants

Objectivity: They evaluate each proposal as submitted; meaning on its own merit, not its potential if certain changes were to be made

Accuracy: They make their judgment against the official evaluation criteria and the call or topic the proposal addresses, and nothing else

Consistency: They apply the same standard of judgment to all proposals









Allocation of proposals to experts





Call:	Proposal:		
H2020-FETOPEN-1-2016-2017	- MUSCLEBOT		

MUSCLEBOT Abstract

Actuation technology at the millimetre scale is a complex field with neither existing feasible solutions nor recent satisfactory breakthroughs. Existing actuation technologies cannot be scaled down below a few millimetres without losing the capability of producing detectable forces and torques, severely limiting the fabrication of miniaturized devices. Biornimetic actuators (i.e. muscles), are considered as a "natural" way of overcoming these efficiency limitations. However, biornimetic actuators developed so far fail to accomptish this goal. In MUSCLEDOT, we will develop novel bio-hybrid cell-based mechanical actuators of sizes below 1 mm, based on substrate deformation induced by cell contractine forces are transferred to engineered substrate size acluates diveloped so far fail to encomptish this destinations. However, biordiver and the size of the optical adhesions, which determine the magnitude and symmetry of the force. The surface anisotropic patterning of adhesive proteins will produce a force dipole on stable anchored eals, generating an et force. We will use this net force to produce a predictable deformation of an elastic substrate and lead to actuation of bio-hybrid relt-based contractile activity and orientation, regulating magnitude and forces, will be controlled by applying cherical and optical stimuli. Upon these, cells rearrange their focal contacts and cytoskeleton. This approach will allow fabrication of bio-hybrid mechanical joints minicking basic kinematic pairs (translations and rotations), actuated by ling cells. Such jung cells to produce a tratefine of living pachtines will multiple degrees of freedom. Such "inity machines" will not be synthetic systems minicking the actuation properties of living biological entities; instead the breakthrough will be to actually rely on and exploit the unique properties of living cells to produce actuations. In the long-term, this new technology can be foundational to develop future mini- and micro-machines.

Export Matching Summary to CS\

soft robotics, cell-based actuators, bio-hybrid robotics, biomimetic systems

Matching Matrix

Area of Expertise	Term coverage	Stefana-Maria Petrescu	Shoshana J. Wodak	Iva Pashkuleva	Markus Grebenstein
systems-biology	1.00	0.60	1.00		0.38
biomimetic-systems	0.81	0.72	0.72	0.81	0.42
soft-robotics	0.92	0.59	0.43	0.64	0.92 Off
systems-engineering,-sensorics,-actorics,-automati	0.56	0.32	0.29	0.50	^{0.56} Ch
cytoskeleton	1.00	0.85	0.62	1.00	0.42
biomimetic	0.82	0.82	0.58	0.82	0.52
synthetic-biology,-chemical-biology-and-new-bio-en	0.77	bio haterials -> biomimetic -> 0.8172 0.77	0.55	0.73	0.21 by

Officials, helped by Vice Chairs, will validate/adjust the pre-assignments given by the system







Evaluation criteria RIA



Excellence

Impact

Clarity and novelty of long-term vision, and ambition and concreteness of the targeted breakthrough towards that vision.

■Novelty, non-incrementality and plausibility of the proposed research for achieving the targeted breakthrough and its foundational character.

Appropriateness of the research methodology and its suitability to address high scientific and technological risks.

Range and added value from interdisciplinarity, including measures for exchange, cross-fertilisation and synergy. Importance of the new technological outcome with regards to its transformational impact on technology and/or society.

Impact on future European scientific and industrial leadership, notably from involvement of new and high

potential actors.

measures for achieving impact beyond the research world and for establishing European though

leadership, as perceived by industry and society.

Implementation

Soundness of the workplan and clarity of intermediate targets.
Relevance of expertise in the consortium,

Appropriate allocation and justification of resources (personmonths, equipment).

Threshold: 4/5 Weight: 60% Threshold: 3,5/5 Weight: 20% Threshold: 3/5 Weight: 20%

























Evaluations outcome



Research & Innovation Actions (RIA)

Cut-off	Eligible proposals received	Above threshold proposals	Retained Proposals	Success Rate	
SEP 2014 (77M€)	639	254	24	3,7%	
MAR 2015 (38,5M€)	665	326	11	1,7%	
SEP 2015 (38,5M€)	800	346	11	1,4%	
MAY 2016 (84M€)	544	272	22	4,0%	
JAN 2017 (84M€)	374	192	26	6,95%	





- Is FET-Open really the right scheme for you?
- Don't waste time on a proposal that has no chance to make it through the FET-Open evaluation
- FET is not ERC: collaboration, science and technology are all essential ingredients
- It is not because something has not been done before that it is sufficiently novel for FET (not just a new publication)
- FET is not the long-term end of an established industry's road-map
- A long-term vision is essential, but also a plausible idea on how to get there



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Country participation in ongoing projects

Country participation in ongoing projects H2020 FET-Open RIA 2014-2016



Funding in ongoing projects H2020 FET-Open RIA 2014-2016



FET-Open RIA interdisciplinarity



European Commission



DEDALE

The project goal

- Introduce new models and methods to analyse and restore complex signals
- Build efficient data processing algorithms in the large-scale settings



Developing high-performance algorithms (based on machine learning) and processing Scientific Big Data

Impact on

1. Astrophysics

map the dark matter mass of the universe (a new way to analyse the data of the Euclid space mission)

2. remote sensing

emergence of high-definition imagers and hyperspectral sensors; real-time estimation of sensor parameters; analysis and classification of multispectral textures and objects; uncontrolled illumination conditions, etc.





Commission

Agencv

408 persons-months (34 persons-year)





Partners



CEA, Irfu, P.I.



Technical University Berlin: Applied Mathematics



Foundation for Research and Technology - Hellas (FORTH), Greece Signal Processing



University College London: Astrophysics Department, UK



<u>Sagem Défense Sécurité (SAGEM)</u>, France: Navigation systems for aeronautic, naval and land applications, optronics technologies, and tactical UAV systems, infrared imagers and light-intensifying cameras, targeting and surveillance sights.



Thanks for your attention!



Next deadlines:

- · 27/09/2017
- May 2018





FET Innovation Launchpad (CSA)

- To verify and substantiate the innovation potential of ideas arising from FET funded projects
- ★ To support the next steps in turning FET technologies into a genuine social or economic innovation
- ★ Short and focused individual or collaborative actions (up to 100.000€ and no longer than 18 months)



Summary of evaluation outcome (1st cut-off)



Call Topic	Indicative budget	Proposals eligible	Above threshol d	Grant requested by above threshold proposals	Retained proposals	Grant requested by retained proposals	Success rate
FETOPEN-04- 2016-2017 (CSA Innovation Launchpad)	1.2 M€	88	51	5.061.309,80€	16	1.594.357,30 €	18,20%

High response to this first call







Example: proposal X is evaluated by 4 independent Remote Evaluators RE1, RE2, RE3 and RE4 and cross-read by 4 independent Cross-Readers CR1, CR2, CR3 and CR4

	RE1	RE2	RE3	RE4	CR1	CR2	CR3	CR4	Score
Criterion 1 60%	3.5	5	5	3	3.5 RE1	5 RE3	5 RE2	5 RE2	5 (RE:4.25)
Criterion 2 20%	4	5	4.5	2	4 RE1	5 RE2	4.5 RE3	5 RE2	4.5 (RE:4.25)
Criterion 3 20%	4.5	4.5	5	2	4.5 RE1	5 RE3	4.5 RE2	5 RE3	4.5 (RE:4.5)

Only REMOTE: 4.25 / 4.25 / 4.5 -> 4.3/5

Final score: -> 4.8/5





Tips (1/2)

Be ambitious, follow your 'dream'

- Novelty is essential, incremental refinements rarely make it highrisk does
- Boil down the vision to a concrete and ambitious proof-of-concept
- Consortium for pathfinding: Collaborate, collaborate, collaborate...
- 3 countries, look for the best but... only if you need. There are no hidden expectations from our side (beyond the rules for participation), i.e. no cosmetic roles – keep it simple
- Look for renewal here too novelty probably starts here
- Narrow interdisciplinarity will not be good enough to win (look beyond your comfort zone – this is not ERC-like career building)
- Commitment: will the project transform the partner(ship)?
- Take interdisciplinarity seriously write your proposal together
- **Collaboration** throughout the project, driven by joint questions, goals and mutual learning, not just passing on results between silos
- Explore new ways of working/learning/changing together



Good FET-Open proposal



Tips (2/2)

Communicate and engage

- Scientific publications
- Social networks & media
- Public engagement

Start working early

- Focus on the high-risk parts with crisp targets
- Don't write for 'us', but for people like you
- Understand the FET rules and respect them (read carefully the documentation, keep in mind the evaluation's criteria)
- Check your deliverables list
- Consult the National Contact Point for advice

EXCELLENCE all around, be it content, form, or presentation

