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Writing an MSCA IF Proposal: Process and Practice

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MSCA Individual Fellow



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My Academic Path

- Elementary School and High School in Podgorica, Montenegro
- 1993 – 1999: BSc in Electrical Engineering at University of Montenegro
- 2000 – 2001: MSc in Electron Microscopy at ISUFI, University of Salento, Italy
- 2002 – 2004: PhD student at University Ca' Foscari of Venice, Italy
- 2004 – 2006: PhD in Physics at EMAT, University of Antwerpen, Belgium
- 2007 – today, Researcher at Vinca Institute, University of Belgrade, Serbia

- 2008 – 2011 NATO Reintegration Grant (my individual project) at Vinca Institute
- 2010/11 – PostDoc at ENEA Brindisi, Brindisi, Italia
- 2013/14 – “Research in Paris” – International Award for Visiting Senior Scientist at Chimie-ParisTech and Collège de France, Paris, France
- Leader for 3 bilateral projects (France - Serbia: 2x, Croatia – Serbia: 1x)
- 2018 – MSCA IF awarded for my Individual project



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My MSCA IF applications

Standard EF, PHY Panel, Proposal Title: ZnS Wurtzite Nanotextured Ceramic Materials for Pyroelectric Energy Harvesting (**NanoPyroMat**)

Host: **ENEA**, Italy; Supervisor: **Dr Amelia Montone**; Grant Requested: **180,277.2 EUR**

- 2016 (call H2020-MSCA-IF-2015):
Proposal number: 706146, Score: **89.00**, **Rejected**
Excellence – **4.40**, Impact – **4.50** , Implementation – **4.50**.
- 2017 (call H2020-MSCA-IF-2016):
Proposal number: 743431, Score: **89.80**, **Rejected**, awarded with the Seal of Excellence
Excellence – **4.40**, Impact – **4.70** , Implementation – **4.40**.
- 2018 (call H2020-MSCA-IF-2017):
Proposal number: 743431, Score: **90.20**, **Accepted**
Excellence – **4.70**, Impact – **4.60** , Implementation – **3.90**.



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Think before you start

- Find the right **HOST**
 - Good institutional capacities
 - The department/group is important/a leader in your field of interest
 - Have a long tradition of hosting international researchers
 - Use the Internet and your connections to find a host that suits you!
- Find the right **SUPERVISOR**
 - He/She should be your “role-model” in science!
 - Expert in your field of interest and in particular can help you greatly with realization of your MSCA IF proposal
 - Think about your Career Development Plan
 - Email/talk to your Supervisor and ask for support when you need it



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Things to remember I

- **The project is yours**, and the host is simply the host. Don't expect feedback on what you are writing from them, and don't expect the labs equipment or standing to help much; the idea is the key and most important thing, and that is your responsibility.
- The proposal is evaluated on **Excellence, Impact and Implementation**. This means they evaluate:
- **Excellence**: This is the quality, innovation and credibility of your idea, the host, the supervisor and the career boost you will get from doing it as an independent researcher thanks to doing it in your host environment **(50%)**
- **Impact**: Enhancing research- and innovation-related human resources, skills, and working conditions to realise the potential of individuals and to provide new career perspectives. Effectiveness of the proposed measures for communication and results dissemination, be it conferences, publications, outreach programmes or social media or blogging, mentoring or MSCA/academic activity promotion **(30%)** and
- **Implementation**. This is the “fit” of the work and management environment of the project, including your ability to manage your own work through the Work Packages and the oversight you will get from your supervisor/host institution, as well as the practical support they will give you **(20%)**.



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Things to remember II

- These are the criteria and the weightings against which everything you write will be judged. You can have amazing scores for Excellence, and still not get the grant. **It has to be “very good” in all areas**, and even small improvements in “weaker” categories can make a big difference.
- Your idea might be great, but, even so, the evaluators have **3 Why questions** for your application:
 - Why you?**
 - Why here** (at your host with your supervisor)? and
 - Why now?**
- If you can answer those three questions in your proposal by demonstrating evidence, you will have a much better chance.



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Things to remember III

- Read the Guidebook carefully, **every word matters**.
- Use the same **Chapter titles** as provided in the Guidebook.
- Don't consider the proposal finished once you've written it: **read it repeatedly and revise the text as much as you can**.
- Don't try to do things at the "last minute". Give yourself plenty of time to write the proposal, and enough time to think about it and revise it after you finish your first draft (minimum 6 weeks). **Fine tuning** is very important.
- Give your proposal to **your colleagues/friends/professors/supervisor** to read and comment on it. If they don't understand it, the evaluators might not either.



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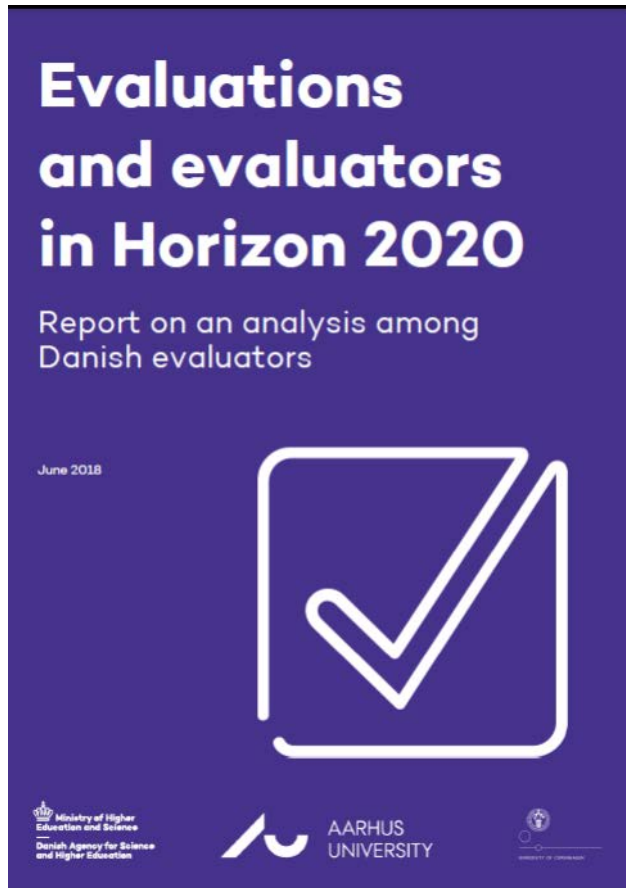
Things to remember IV

- If the proposal has been rejected, and you have comments from reviewers, make sure that you **read, understand and act on** the negative aspects of the proposal that they highlight before you resubmit. You cannot improve the proposal or your result if you don't address the concerns of the reviewers, however unusual you think they might be; in this situation, **it's important to address the negative comments, not to agree with them!**
- Try to have a **“vision”** of what the proposal offers. This is equally valid for specific, personal development, and more general, long-term or strategic issues. Try to work that into the **“narrative”** of your project; remember to explain why it is relevant, useful, novel or innovative and how that fits into the goals and objectives of the EU as a whole, and/or your specific field.
- **It's not likely that the evaluators will be experts in exactly what you want to do;** after all, your idea should be new or innovative and so they can't be experts in every aspect of what you want to achieve. Therefore, think in terms of clarity and **make your writing relevant and logical**, so that the idea you are putting forward is easy to follow.



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Evaluation



3.1 How do evaluators read proposals and what did they say about the quality?

Most evaluators start by familiarising themselves with the proposals by looking at the content list, Part A forms and the abstract, or by a more unstructured skimming of the text to get an overview and a first impression of the quality before a more in-depth reading from "A-Z". Most go through the proposal more than once, spending the second or third time reading looking for things such as coherence between ideas and methods, match between objectives, tasks and deliverables, or checking if the project is "balanced and well-structured".

Interviewed evaluators who estimated their time spent on reading and evaluating proposals indicated that they used at least three hours on each.

Only one of the evaluators used a software tool to track specific keywords throughout the proposals. Almost all evaluators admitted that they quickly get an impression of proposal quality (after a few pages of reading or skimming various key elements of the proposal). At the same time, they assured the interviewers that all proposals get a thorough and fair treatment, as they are fully aware of the large amount of time the proposers use on writing their proposals. The fact that you have to take an independent position on each of the proposal elements also mean that the evaluation must be thorough, as one of the evaluators said.

When asked if there were elements in the proposals that they always or often go over lightly, the evaluators' answers vary. Some mention comprehensive "background chapters", other mention the "annexes": CVs, partner descriptions or WP descriptions, "standard text" or "copy-paste" text used in for example the implementation part of the proposals. It does not mean that it is ignored, but rather that it is read less thoroughly, or only parts of it is read to check the quality or feasibility of these parts of the project.



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Pay attention to your CV

- Make your CV **representative of your ability to achieve results** in your project. Emphasise things that show your experience of work or achievements that relate to your project idea or your ability/potential to achieve the goals outlined in the expected project results.
- Demonstrate **relevant experience** and **relevant transferable skills** where possible. Mention any **relevant mobility** (Summer schools, Postdoc experience, Research awards abroad and so on); one of the key things they want is evidence that **you personally**, as well as your idea, **are actually worth investing in**.
- Always remember that the EU is making an investment in **both you and your idea**; it's usually a LOT of money, hundreds of thousands of euros; you need to demonstrate that it should be you, not someone else, who is able to work on your idea, and also that your chosen host and mentor will provide the right environment for you to be successful.



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Pay attention to your CV

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PERSONAL INFORMATION

Name and surname **Radenka Krstanović Whiffen**
 Academic title Ph. D.
 Year and institution of PhD obtained 2006, EMAT (Electron Microscopy for Materials Science), Department of Physics, University of Antwerp, Belgium
 Phone and Email +381 69 154 1975, radenka@vinca.rs
 Date & place of birth 15th of April 1975, Podgorica, Montenegro

WORK EXPERIENCE (CHRONOLOGICALLY)

Date (from – until) 07. 09. 2017 – Present
 Institution University of Madeira, CQM - Centro de Química da Madeira, Portugal
 Position Science and Technology Manager
 Work field *Material Science, Nanotechnology, Electron Microscopy*

Date (from – until) 06. 07. 2016 – Present **NOTE On Maternity Leave: 15.09.2016 – 06.09.2017**
 Institution Vinča Institute of Nuclear Sciences, University of Belgrade, Serbia
 Position Research Professor (on leave)
 Work field *Material Science, Nanotechnology, Applied Physics*

Date (from – until) 22. 12. 2010 – 05. 07. 2016 **NOTE On Maternity Leave: 28.03.2014 – 28.03.2015**
 Institution Vinča Institute of Nuclear Sciences, University of Belgrade, Serbia
 Position Research Associate Professor
 Work field *Material Science, Nanotechnology, Applied Physics*

Date (from – until) 01. 12. 2006 – 21. 12. 2010
 Institution Vinča Institute of Nuclear Sciences, University of Belgrade, Serbia
 Position Research Assistant Professor
 Work field *Material Science, Nanotechnology*

Date (from – until) 01. 05. 2004 – 25. 11. 2006
 Institution EMAT - Electron microscopy for materials science, University of Antwerp, Belgium
 Position PhD Student
 Work field *Physics, Material Science*

Date (from – until) 01. 04. 2002 – 01. 05. 2004
 Institution Physical Chemistry Department, Ca' Foscari University of Venice, Italy
 Position PhD Student
 Work field *Chemical Physics, Material Science*

Date (from – until) 01. 11. 2001 – 30. 03. 2002
 Institution ENEA Casaccia Research Center, Rome, Italy
 Position Young Research Fellowship Holder
 Work field *Physics, Material Science*

EDUCATION (CHRONOLOGICALLY)

Date 22.06.2006
 Place Antwerp, Belgium
 Institution EMAT, University of Antwerp, Supervisor: Prof. Gustaaf (Staf) Van Tendeloo
 Title of qualification awarded PhD. in Physics, "Structural Characterization of Optically Advanced Materials"

Date 19.09.2001
 Place Lecce, Italy
 Institution ISUFF, University of Lecce, Mentors: Dr. Marco Vittorio Antisari and Dr. Amelia Montone
 Title of qualification awarded MSc. in the field: Materials and Innovative Technologies: "Electron Microscopy: A Tool for Industrial Quality and Environment Monitoring" (2000/2001). Master thesis: "Heavy metal phases in fly ashes: an investigation by scanning electron microscopy".

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Date 24.12.1999
 Place Podgorica, Montenegro
 Institution Faculty of Electrical Engineering, University of Montenegro
 Title of qualification BSc. in Electronics

TRAINING (CHRONOLOGICALLY)

Year and Location 2013-2014, Paris, France (4 months)
 Institution Chimie-ParisTech and Collège de France
 Subject and skills covered *Visiting Senior Researcher Grant "Research in Paris". The goal was to examine and reveal the influence of different sintering conditions and of starting precursor's characteristics on the densification mechanisms in the Spark Plasma Sintering Process and the resultant yttrium oxide ceramics' microstructure.*

Year and Location 2010-2011, Brindisi, Italy (7 months)
 Institution ENEA Brindisi Research Center
 Subject and skills covered Postdoctoral specialization at the Department of Materials and New Technologies, specializing in the techniques of high resolution transmission electron microscopy including analytical techniques in TEM, and of atomic force microscopy.

LANGUAGES

English – fluent, Italian – fluent, French – basic, German – beginner, Dutch – beginner, Serbo-Croatian (BCS) – mother tongue

RESEARCH PROJECTS WITH FUNDING (CHRONOLOGICALLY; PROJECT LEADER)

- 2016-2017 Leader of the Serbian – French bilateral project: "Nanostructured transparent ceramics prepared by coupling slip casting and microwave sintering of cubic phase nanopowders", between Laboratory for Radiation Chemistry and Physics, Vinča Institute of Nuclear Sciences, Belgrade and Université Pierre et Marie Curie – LCMCP, Paris [EUR.4000/per year = **EUR 8,000**].
- 2016-2017 Leader of the Serbian – Croat bilateral project: "Preparation and characterization of thin films from modified TiO₂ nanostructures for application in photovoltaic cells", between Laboratory for Radiation Chemistry and Physics, Vinča Institute of Nuclear Sciences, Belgrade and Laboratory for Energy Conversion Materials and Sensors, Division of Materials Physics, Rudjer Boskovic Institute, Zagreb [EUR.3000/per year = **EUR 6,000**].
- 2013-2014 "Research in Paris" Grant for Visiting Senior Researcher [EUR.13,500 for 4.5 months]
- 2011-2012 Leader of the Serbian – French bilateral project: "Optically active oxide ceramics: advanced preparation and characterization methods", between Laboratory for Radiation Chemistry and Physics, Vinča Institute of Nuclear Sciences, Belgrade and Laboratoire de Chimie de la Matière Condensée de Paris, Centre National de la Recherche Scientifique (CNRS), Paris [EUR.4000/per year = **EUR 8,000**].
- 2010-2011 Grant for Post-doctoral Study (6 months), awarded by the Ministry of Education and Science of the Republic of Serbia [RSD 876,962 c.a. **EUR 8,000** at the time, for 6 months]
- 2008-2011 Leader of the project "Synthesis and Characterization of Luminescent Thin Films and Nanocomposites", awarded by the Reintegration Grant, NATO Science for Peace and Security Programme, grant reference number CBP EAP RIG 983373 [EUR.25,000 in total].

TEACHING (CHRONOLOGICALLY; UNDERGRADUATE, GRADUATE, POSTGRADUATE STUDY PROGRAMMES)

- Practical lessons on XRD technique for the Masters in NanoPhysics, March 2006, EMAT, University of Antwerp (Postgraduate Programme).
- Practical lesson with conventional TEM during the EMAT Winter School on Transmission Electron Microscopy, January 2005, EMAT, University of Antwerp (Postgraduate Programme).
- Practical lessons with conventional SEM and TEM during the "SEM Samples Preparation in Material Science" and "TEM Samples Preparation in Material Science", theoretical and experimental workshops organized by SISM – Italian Electron Microscopy Society, 21-25 October 2002, Ca' Foscari University of Venice, Italy.

MENTORSHIP OF DOCTORAL AND MASTER DISSERTATIONS AND TRAINING OF YOUNG RESEARCHERS

- 2009-2011: Helping the realization of the PhD thesis: "Exploring physical properties of noble metals nanoparticles dispersed in synthetic polymers and biopolymers", defended by D. Božanić at the Faculty of Physics, University of Belgrade, 2011.
- 2007-2010: **Co-mentor** of the PhD thesis: "Synthesis and characterization of luminescent europium-doped nanopowders", defended by Ž. Anić at the Faculty of Technology and Metallurgy, University of Belgrade, 2010.
- 2007-2009: Helping the realization of the Masters thesis: "Optical and structural characteristics of zink silicate

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powders doped with rare earth and transition metals ions", defended by Lj. Đačanin at the University of Novi Sad, Physics Department, 2009.

- 2007-2009: Helping the realization of the Masters thesis: "Physical characteristics of starch nanocomposites with metal and semiconductor nanoparticles", defended by D. Božanić at the Faculty of Physics, University of Belgrade, 2009.

LONGER VISITS TO FOREIGN RESEARCH AND EDUCATION INSTITUTIONS (CHRONOLOGICALLY)

- 2013-2014 Visiting scientist at the Laboratoire de Chimie de la Matière Condensée de Paris, Chimie- ParisTech, through the "Research in Paris" Grant for Senior Researcher (from 1st of October 2013 to 11th of February 2014). Part of the experimental work was conducted at the Collège de France, Paris.
- 2010-2011 Postdoctoral specialization at the Department of Materials and New Technologies, Research Center ENEA Brindisi (from 15th of September 2010 to 15th of April 2011).
- 2010-2012 Short visits (4 weeks in total) to the Laboratoire de Chimie de la Matière Condensée de Paris, Centre National de la Recherche Scientifique (CNRS), Paris (bilateral project activity).

AWARDS AND RECOGNITIONS (CHRONOLOGICALLY)

- 2017 **Seal of Excellence** for the MSCA IF project proposal "**ZnS Wurtzite Nanotextured Ceramic Materials for Pyroelectric Energy Harvesting**" (89.8/100, Physics Panel), awarded by the European Commission on April 24th 2017.
- 2nd SEE Regional Workshop on Science Communication, 20-22 September 2014, Podgorica, Montenegro, participation awarded by UNESCO Venice Office.
- 2014 Front Cover as **FEATURED ARTICLE** of the Chemical Engineering Journal (253 (2014) 341) with the article "ZnO/Ag hybrid nanocubes in alginate biopolymer: Synthesis and properties".
- 2013 "**Research in Paris**" 6-months Grant for Visiting Senior Researcher, awarded by the City of Paris.
- 2010-2011 Grant for Post-doctoral Study (6 months) at the Research Center ENEA Brindisi, Italy, awarded by the Ministry of Education and Science of the Republic of Serbia.
- 2009 European Microscopy Society Scholarship to attend the MC2009 congress in Graz, Austria.
- 2008 Fellowship for Young Researchers, Women in Nano-Winter School, the EC-FP6 Specific Support Action: "Strengthening the Role of Women Scientists in Nano-Science", Kranjska Gora, Slovenia.
- 2008 - 2011 **Reintegration Grant**, NATO Science for Peace and Security Programme, Brussels, Belgium
- 2007 Joint Research Centre (JRC) Fellowship for Young Researchers for participation at the 15th International Symposium "Spectroscopy in Theory and Practice", Nova Gorica, Slovenia.
- 2006 Best Poster prize at the 8th Yugoslav Materials Research Society Conference - YUCOMAT 2006, Herceg Novi, Montenegro.
- 2003 SIME (Italian Electron Microscopy Society) Scholarship for Young Scientists for attendance at the 6th Multinational Congress on Microscopy, Pala, Croatia.
- 2003 Best Poster prize at the 5th Yugoslav Materials Research Society Conference - YUCOMAT 2003, Herceg Novi, Montenegro.
- 2001-2002 ENEA (Italian National Agency for New Technologies, Energy and Environment) Young Researcher Fellowship, Rome, Italy.

ORGANIZATIONAL SKILLS AND COMPETENCES (HOME AND INTERNATIONAL SCIENCE EVENTS)

- 2015 Member of the Organizing and Programme Committee of the 4th International Conference on the Physics of Optical Materials and Devices - ICOM 2015, Budva, Montenegro.
- 2012 Member of the Organizing and Program Committee of the 3rd International Conference on the Physics of Optical Materials and Devices - ICOM 2012, Belgrade, Serbia.
- 2010 Member of the Scientific Board and Member of the Organizing Board of the 4th Serbian Congress for Microscopy, Belgrade, Serbia.
- 2009 Member of the Organizing Committee of the 2nd International Conference on the Physics of Optical Materials and Devices - ICOM 2009, Herceg Novi, Montenegro.
- 2007 Member of the Organizing Board of the 3rd Serbian Congress for Microscopy, Belgrade, Serbia.
- 2002 Member of the Organizing Board and docent on: "SEM Samples Preparation in Material Science" and "TEM Samples Preparation in Material Science", theoretical and experimental workshops organized by Italian Electron Microscopy Society, October 2002, Università Ca' Foscari di Venezia, Italy.

MEMBERSHIP IN SCIENCE ORGANIZATIONS AND BODIES (HOME AND INTERNATIONAL)

- 2017 – Present, Portuguese Microscopy Society, Member.
- 2015 – Present, Balkan Network of Science Journalists, Member.
- 2012 – Present, Serbian Physical Society, Member.



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Be neat and tidy

- Have your **English** checked by a professional – the evaluators are very sensitive to errors!
- Choose your **references** wisely (up to 15) – they take up lots of space and there is only 10 pages for the proposal!
- Evaluators are humans and do not spend much time on reading your proposal: **make your text interesting and easy to read**. Pay special attention to the **abstract**.
- If you have problem with space, consider using **the smallest font allowed!**
- The same applies for the Gantt Chart: **use the smallest font**.
- Use **bold**, *italic* and underline the text to highlight your ideas or important points.



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Be clear

 European Commission
Research & Innovation - Participant Portal
Proposal Submission Forms

Proposal ID **797951** Acronym **NanoPyroMat**

Abstract

Pyroelectric materials could harvest energy from naturally occurring temperature changes such as changes in ambient temperature, and artificial temperature changes due to exhaust gases, convection or solar energy. These materials can operate with a high thermodynamic efficiency and, showing an advantage over thermoelectric materials, they do not require bulky heat sinks to maintain the required heat difference. Hence, "pyroelectric energy harvesting" could be the right methodology to rescue some of the enormous amount of energy wasted as heat by converting the thermal fluctuations into electrical energy (e.g. more than 50% of the energy generated in the U.S. is lost that way each year). Reusing the wasted energy and increasing the share of renewable energy in final energy consumption are important EU targets, expressed in the Europe 2020 Strategy. Enhancing energy efficiency solutions would help citizens both in economic (lower electricity bills) and ecological (clean, green energy) terms.

This project examines the development of pyroelectric nanotextured ceramics, for use in future ambient energy harvesting. An original combination of an inexpensive mechano-chemical synthesis for the production of hexagonal ZnS (wurtzite) nanopowder, and the subsequent fabrication of nanotextured ceramics applying a high-pressure-low-temperature sintering, will be used, an approach we have explored previously to suppress grain growth. Neither the fabrication methods, nor the existence of nanotextured pyroelectric ceramics of wurtzite have yet been reported in the literature. In particular the project will explore the potential of the wurtzite nanotextured ceramics as new functional anisotropic bulk materials for pyroelectric energy harvesting. We expect the pyroelectric properties to improve with the introduction of nanostructures and texturing within the anisotropic material like wurtzite, which should ultimately lead to more efficient pyroelectric devices for energy harvesting.

Remaining characters

3



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Connect with others

- Find more info from other (ex) MSCA IF applicants – follow their Forums: **connectivity** is important, lots of people will be happy to share their experience, or even their winning proposals.
- Talk to the **NCP** or an **MSCA related person at your host**, share the proposal with them.
- If your host organizes a **Writing Camp** or some other helpful event: get involved.



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Widening Fellowships

- Consider the **Widening Fellowships** applications to the call for MSCA-IF, where the host organisation is located in an eligible widening country, will be automatically resubmitted to this call in case their proposal fails to reach an adequate place in the ranking to be funded in the regular MSCA-IF call.

Widening countries:

- Member States: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.
- Associated Countries: Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Former Yugoslav Republic of Macedonia, Georgia, Moldova, Montenegro, Serbia, Tunisia, Turkey and Ukraine.



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Acknowledgements

- Ministry of Science of Montenegro for the invitation to the MSCA IF promotional event.
- The European Union for MSCA IF Funding*.
- My Project Officer F.P. Mancini for organizing and sending promotional material for this event.



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