

## MSCA INDIVIDUAL FELLOWSHIPS

### EUROPEAN FELLOWSHIPS – STANDARD PANEL 2017

#### EXCELLENCE

##### Strengths:

- The state-of-the-art in the field has been adequately presented and the innovative aspects of the proposed research, based on the innovative exploitation of the XXXXXXXX, have been conveniently highlighted.
- The state-of-art in the field is adequately reviewed; the proposed approach and research methodology are clear and sound.
- The cutting-edge research proposed in the project will help the experienced researcher to get new career possibilities.
- The project addresses clearly innovative concepts and has significant interdisciplinary aspects.
- The project is based on multidisciplinary aspects of science and the work will therefore approach different fields such as catalysis, chemistry and biochemistry.
- The high quality of the training program proposed to the researcher and the two way transfer of knowledge are convincingly demonstrated in the proposal.
- The training plan is very good and convincing. The researcher will receive hands-on training to develop scientific, managerial and transferrable skills largely exploitable in future career.
- The transfer of knowledge from the host institution to the researcher is appropriately defined, with new knowledge to be gained on both technical and non-technical skills, and with exposure to other disciplines.
- The transfer of knowledge from the host to the researcher is excellently described, containing both a great variety of scientific skills as well as important transferable skills (commercialisation, intellectual property right issues, management skills, career planning, teaching).
- The transfer of knowledge from the researcher to the host is credible and contains many useful methodologies and areas of expertise, which bring new knowledge to the host group.
- The proposal is appropriate for a two way transfer in terms of research skills as the applicant will introduce to the host group some methods for in vivo screening. In addition, the applicant will receive training in several fields such as XXXXX chemistry or XXXXXXXX.
- The supervisor is a high-profile scientist in the catalysis field and has a very good track-record.
- The supervisor is a world-leading expert in the field of XXXXXXXX. He has excellent track record in terms of publications, scientific achievements and capability to secure competitive research funding (including the ERC Advanced Grant in 2016), as confirmed by the numerous prestigious awards received.

- The supervisor is very experienced in supervising Ph.D. students and postdocs and has an excellent track record in the field relevant to the proposal. Thus, the quality of supervision is high.
  - The host institution has received awards for excellence in research and career development.
  - The host institution has a recognized experience in supporting the development of researchers, and offers a good collaborative environment and opportunities for international networking.
  - The host institute provides suitable, hospitable and facilitating mechanisms for integration of incoming foreign researchers. The measures for integration into the team are excellent and involve active participation in the daily functions of the host group.
  - The host group leader has an excellent supervision experience at both postgraduate and postdoctoral level (including MSC fellows), and has a number of well-established international collaborations (including the active involvement in two COST Actions) which will likely contribute to the scientific development of the researcher, as well as to increase her international visibility.
  - The hosting arrangements are realistic and clearly described. The proposal includes different actions promoted by the host institution to facilitate the integration of the researcher within the team/institution and the new country.
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- The project describes some of the measures that will be taken by members of the host group to integrate the researcher in the different areas of expertise and disciplines of the proposal and the social environment of the research group.
  - The past experience and the CV indicate that the researcher matches the proposed research work, with several publications in high impact scientific journals. In addition, the researcher has experience as PhD and post-doctoral fellow in several important catalysis research groups in different countries, complemented by teaching and supervision skills. Thus, the fellowship under the selected host would contribute to reinforce the researcher's professional maturity and independence.
  - The project gives good international networking opportunities via the networks of the supervisor.
  - The researcher has suitable background and knowledge for the proposed project. The researcher has demonstrated dynamicity and variability regarding research and has a very good track record with respect to scientific publications in high level international journals and teaching experience. This combined with the excellent scientific environment at the host institution is likely to help the researcher grow and mature to a very good level.
  - The research background of the researcher is adequate for the proposed work, being therefore an ideal candidate for successfully carrying out the research project.
  - Taking into account the ERs relatively short-term involvement in research (PhD awarded in June 2015), the experienced researcher has very good publication record, including 8 papers (3 as first author) published in mid-to-high impact international peer-reviewed journals.

## IMPACT

### Strengths:

- It is convincingly demonstrated throughout the proposal that the fellowship will provide the researcher with new opportunities for future career, especially as a credible, realistic and useful career development plan for the experienced researcher is presented.
- Most of the proposed research training actions as well as the managing and/or soft skills will have a positive impact on the experienced researcher's career, boosting the applicant to become an independent research group leader.
- Additional mentoring, supervising and collaboration opportunities offered by the host group during the fellowship will serve to the experienced researcher to broaden knowledge and skills improving career prospects.
- The measures to maximize the scientific impact of the proposed research are credible, convincing and clearly articulated. The dissemination plan includes the publication of results in high impact peer-reviewed scientific journals, and their presentation at international conferences in the field and at local seminars and workshops.
- The researcher will acquire through the fellowship a high quality research training and gain relevant scientific knowledge and technical skills that will significantly contribute to enhance the potential and future career prospects of the candidate. The positive impact of the project on the applicant's career is clearly argued, in terms of learning new experimental techniques, exposure to national and international research network and broader academic development. Moreover the suggested collaboration among the different groups will help the researcher to establish a solid network and thus make it easier to land the next career step.
- The direct benefits to the researcher from the proposed activity through the development of a new set of technical skills and management of the research activity is clearly demonstrated.
- New competences obtained in terms of proposal development, grant management skills, and new experimental skills will enhance the potential and future career prospects of the researcher.
- The fellowship will also contribute to develop the researcher's maturity and independence in presenting his scientific results and writing his own papers.
- The fellowship provides a lot of opportunities for the training, getting new knowledge and developing new skills that will enhance the researcher's potential and future career prospects.
- The expected impact from the well planned training and new skills developed on the researcher's future career prospects are convincingly presented. The researcher's acquired competences and skills will increase the researcher's future career opportunities.
- The proposal will be invaluable to expand the researcher's professional network - The plan which is provided for the exploitation and dissemination of the results to the scientific community, the general public and policy makers is realistic, quantified and comprehensive. A list of peer reviewed journals and international conference which are in line with the research area of the proposal is precisely specified.
- The management and protection of IP issues are very well described and taken into account, as well as the potential to engage with industrial partners, interested in the exploitation of the novel technology. The concrete possibility of networking with potential stakeholders, such as a pharmaceutical company, currently involved in a long-term collaboration with the hosting group, is a remarkable added value, adequately underlined in the proposal.

- The exploitation strategy and the IPR aspect are sufficiently reflected and overall appropriate according to the university and H2020 guidance. In addition, immediate implementation of good results will be exploited together with company XXXXXXX, which is part of host's industrial involvements.
  - A well-defined strategy with frequent updates has been presented for disseminating the research using the researcher's website. An annual communication plan with the broad public has been established.
  - The proposed strategies to disseminate the results of the action to the scientific community are well defined and credible. The publication in high impact journals is well-justified by the nature of the proposed research and the records of both the supervisor and the researcher.
  - The dissemination programme, for the scientific community, is well planned, in terms of high impact publications, e.g. Journal of the American Chemical Society, Chemistry of Materials, and Advanced Energy Materials, where between 5 to 10 publications are planned to be submitted during the project. Conference presentations, e.g. the annual meeting of the International Society of Electrochemistry and specific forums are considered as well. .
  - The planning for dissemination of the results in publications and conference presentations is clear and it is included also in the Gantt chart.
  - Measures aimed to protect results with commercial potential are implemented. Plans for dealing with possible commercialization of the results (IPR and industry contacts) are clearly explained.
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- The communication plan describes a clear commitment to engage with non-scientific and lay audience through public events and outreach activities and by exploiting audio-visual tools and dedicated institutional websites and press releases. In addition, the experienced communication department of the host institution will be involved in the communication strategy improving the quality of the plan.
  - The nature and frequency of the planned communication actions is appropriate and this increases the credibility and appropriateness of the proposed plan.
  - The communication strategy to exploit and disseminate the action results is professionally planned and includes publications in key journals, presentations at scientific meetings and the use of a dedicated project webpage.
  - Four public engagement events marked on the Gantt chart are credible for successful communication to different audiences conducted research and project results.
  - A concrete plan of the communication of the action activities to different target audiences (scientists in different fields and the general public) is presented. The plan has been included in the Gantt chart.
  - The proposed measures to communicate the scientific results to a wide audience are clearly outlined and credible.
  - Excellent outreach activities are proposed by the host to reach a wide range of general public audiences, in which the active involvement of the researcher is carefully described.
  - The proposed measures to communicate the activities to different target audiences are very good and build on the host institute's existing outreach programmes. They can be expected to widen the impact of the project.

## IMPLEMENTATION

### Strengths:

- The work plan includes WP and different tasks (with different approaches for crucial steps) which have been conveniently designed to successfully carry out the proposed research.
  - The organization of the Gantt chart, including the events as well as of communication and engagement activities is coherent.
  - The work packages, milestones and their related deliverables are appropriate and feasible in the timescale detailed in the Gantt chart.
  - The work plan of the project is coherent with the methodology description. The interdependency of the individual work packages and tasks is clearly presented.
  - Deliverables are clearly defined and measurable. There is a good set of identified milestones.
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- The allocation of tasks and resources is well described and in line with the reported work plan and objectives.
  - The publication, dissemination and other training activities are timely and appropriate; the person-months allocation is justified and corresponds to the work packages described.
  - The amount of person-months is appropriate for setting-up of the beamline and performing the synchrotron experiments as well as the proposed experiments in the host group.
  - Strategies for day-to day supervision and progress monitoring are described in a convincing manner.
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- The arrangements for the management of the project are very well described and take into account all the relevant aspects, such as research implementation, financial issues and effective integration of the researcher within the host institution.
  - The progress of the project will be assessed through regular meetings and monitored against the expected milestones and deliverables.
  - The project management structure and procedures are appropriate; the quality management issues are appropriately considered.
  - The proposal includes a realistic assessment of risks that may occur and the corresponding mitigation measures to be taken are properly detailed and elaborated.
  - The research risks in terms of beam time application and the success of the experiments are clearly identified and sufficiently discussed. Mitigation plans are credible with more than one possible alternative.
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- All the required infrastructure to develop the work plan is available at the host group or through access to the general or particular services of the host institution.
  - The research environment provided by the host institution is ideal for the development of the experimental plan, as well as for offering the researcher a superior training experience.
  - The host institution has all the facilities, equipment and infrastructure required to successfully approach the proposed research; the commitment of the beneficiary to the programme is clear and convincing.

## EXCELLENCE

### Weaknesses:

- The state-of-the-art does not sufficiently provide scientific references to sustain some of the statements made in the proposal. The proposal does not provide evidence to show the gap in the literature which is going to be covered by the project. As a result, the originality and innovative aspects of the research in relation to the state-of-the-art are limited.
  - The topic appears very generic and the research objectives are not clearly presented. The presentation of the state-of-the-art is not adequately focused. The literature review is not sufficiently detailed, and thus the original contribution to the scholarly field is not convincing.
  - The state of the art is insufficiently addressed in the proposal.
  - The interdisciplinary character of the research is insufficiently addressed.
  - The objectives are not sufficiently presented. The innovative aspects of the proposal are not convincingly presented. The research methodology is not sufficiently described.
  - The novelty of the research is somewhat limited and its difference from ongoing work at the groups of the applicant and the secondment partner is not sufficiently defined.
  - The innovative aspects of the proposal are not evident.
  - The project devotes too much space to generalities and does not always sufficiently detail the actual project work.
  - The two research objectives are presented very broadly and generally.
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- The involvement of experts from XXXX and XXXXXXXX, which is a requirement for the proposed research, is not properly addressed.
  - The gender aspect is mentioned as the focus for survey but it is not clearly mentioned how will it be regulated.
  - The emphasis on gender aspect is not convincing as occupants' age and educational level are factors that could also influence the assessment for high moisture and health levels during the surveys.
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- The research methodology is not explicitly stated, in particular for the second objective. The problem is described, but it is not clear which methods are planned to be used in order to tackle the problem. The innovative aspects going beyond the current state-of-the-art are not sufficiently explained.
  - The methodology for the project is generic and not fully convincing. The need of using two pieces of training for perfecting fundamental researcher's skills is inefficient and not well explained.
  - The methodology and approach are not sufficiently described. Moreover the proposal fails to demonstrate how it will guarantee the wide applicability of the results to the diversity of climate conditions, historical building and local regulations found in the EU.
  - The methodology that will be used for the development of novel theoretical models design is unclear.

- The supervisor's expertise in training and mentoring researchers is described in insufficient detail.
  - The format and complexity of the researcher's CV makes it difficult to evaluate the professional maturity and current position of the researcher (for example there is no clear list of previous and current positions).
  - The track record of the supervisor is not presented in sufficient detail in the proposal.
  - The information on the researcher past skills and activity is not sufficiently clarified. Most of the research records are only loosely connected to the action's goal. It is not clear how the past researcher skills will contribute to the fellowship and how will eventually enrich the host organization.
  - The exact measures or activities to ensure the transfer of knowledge from host to the researcher are not specified. The proposal description is rather focused on the high competence of the host professors, rather than on the real approach to gain the new competence.
  - The methods to transfer the knowledge from the researcher to the host are not sufficiently presented.
  - Transfer from the researcher to the host organisation of the previously acquired knowledge and skills is very limited by the required midterm seminars and unplanned spontaneous activities.
  - Given that the researcher has received one's PhD and university degree from the host institution, the potential for the transfer of new knowledge from the host to the researcher has not been convincingly established.
  - The proposal fails to provide sufficient information about the role of the researcher's previous experience in the proposed work on formal methods and evaluation frameworks.
  - The proposal fails to describe horizontal transferable skills that will be gained by the researcher during the fellowship.
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- The provision for specific formal training actions is insufficient, beyond the networking and seminar attendance that are common practice in any research lab.
  - The proposal lacks details about how to achieve the targets of the training activities.
  - Complementary skills are not sufficiently explained.
  - The training programme is not properly developed in the proposal, its elements, both concerning scientific skills and complementary skills, are only minimally addressed. Furthermore, the transfer of knowledge from the researcher to the host institution is not clear. The set of skills to be learnt in the proposed industrial secondment is only vaguely stated with little or no reference to the specifics of the project.
  - Even though training seminars in scientific writing, project management, fund raising, and research are mentioned, a total of 15 training days is weak for a project with a duration of 24 months.
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- The hosting arrangements are only briefly addressed, and international networking possibilities offered by the host are not sufficiently clarified.
  - The ways in which the applicant will be integrated in a meaningful way in the host institution are not explained in sufficient detail. In particular, the proposal does not present sufficient

information as regards the hosting arrangements foreseen to facilitate the integration of the researcher to the new environment.

- Specific actions for the integration of the researcher in the institution and in the different areas of expertise and disciplines are not clearly detailed in the proposal.
- Experience and capacity of the secondment supervisor and additional trainers are not sufficiently described.
  
- The proposal fails to explain properly the ways in which the past experience of the researcher will be maximized in the proposed research, for example without providing evidence of the concrete synergies between the experience in publications and the benefits to plan publications during the fellowship.
- The measures taken to integrate the researcher in the different areas of expertise offered by the hosting institution are not sufficiently described.
- The proposal and CV do not convincingly demonstrate the capacity of the researcher to attain desired positions of professional maturity.
- Career possibilities subsequent to the fellowship are partly overestimated in view of the recruitment practices of the envisaged research institutes.
- There is insufficient information about the international networking opportunities the host could offer.
- - The contribution to the researcher's professional development as a researcher is described only in general terms.
- - There is insufficient evidence of a coherent career development strategy.

## IMPACT

### Weaknesses:

- It is not made sufficiently clear how the fellowship will impact on the researcher's career prospects after the fellowship period.
  - Specific opportunities for the researcher arising from the project are not defined.
  - The proposal provides insufficient details on comprehensive and precise skill acquisition.
  - Very limited information is provided with regard to new skills that will be achieved apart mentioning that the action will mark the beginning of the professional involvement with investigation of computer-based digital evidence.
  - The expected impact of the planned research and training activities on the experienced researcher's career prospects are inadequately dealt with in the proposal. It is unclear exactly how the researcher will benefit in the long term from research and other training activities at the host institution.
  - The proposal lacks detailed information about the means through which the project will enhance the researcher's teaching career
  - Limited information is provided on the concrete impact that this fellowship can have on career plans, particularly with regard to the declared objective of a tenured position in an academic institution.
  - The expected impact of the planned research on the researcher's career prospect is not sound enough. The impact on the research group the researcher plans to build later is not convincing as the intended research domain is a narrow field and already much investigated.
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- There is insufficient detail provided regarding the dissemination strategy, and the individual dissemination activities are not clearly scheduled in the Gantt chart.
  - The dissemination strategy is not sufficiently detailed and elaborate e.g. it does not clarify the type, content and venues of publications, conferences etc.
  - The proposal is unclear with regard to the specific results of the research. Not all envisaged scientific publications are presented in sufficient detail (with regard to journals, titles etc.).
  - The proposed dissemination strategy is not realistic, as there is no substantive detail on the dissemination outcomes, and the likelihood that the proposed publications would materialize and would be competitive is lower than ideal.
  - The description of dissemination of the results to the scientific community and the exploitation strategy are minimal apart from a translation into English of papers and a monograph. The proposal fails to define sufficiently a dissemination strategy to ensure that the ways to disseminate and exploit the knowledge generated by the action will be achievable, especially as the Gantt chart insufficiently includes actions of exploitation and dissemination.
  - The dissemination plan is not sufficiently detailed on the type of workshops and conferences where the results will be presented, or which conferences will be attended in addition to the very general American Physical Society annual meeting.
  - The dissemination actions are not prepared sufficiently. The dissemination actions are not correctly presented in the Gantt chart.

- The management of the Intellectual Property is insufficiently detailed. The proposal emphasizes a focus on commercial application but it is not clear how industrial companies will interact and benefit from the proposed project's results.
  - The technical exploitation of the project results is not clearly justified. The integration of information from multiple networks has been mentioned, however there is no evidence that any sector other than water companies will be engaged in the project.
  - The proposal fails to describe an adequate exploitation plan and IPR management.
  - The exploitation plan is too generally explained, and dissemination within the industry community is insufficiently discussed.
  - The exploitation plan is not sufficiently developed.
  - A clear exploitation strategy is missing. The incorporation of different stakeholders at national and international level as well as specific exploitation actions are not adequately considered.
  - The exploitation activities at an industrial level are presented rather generically, and this is not fully effective.
  - The measures to exploit the research results are not well elaborated. There is no clear description of possible commercial aspects or potential industrial partners and other stakeholders.
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- There is insufficient information regarding communication, and concrete planning for communication is absent from the Gantt chart.
  - The public communication strategy is not sufficiently clear. The strategy to 'developing awareness' and involvement of different professional/public stakeholders is not elaborated sufficiently.
  - The communication strategy is only partly consistent with the scope of the research project. The overall public impact of the research is overestimated in light of its scholarly content.
  - The stakeholder groups have not been sufficiently differentiated in order to adjust the contents and measures of communication.
  - The communication plan is generically presented. The research activities to be communicated to the public through social media, and through participation in public events are not well identified.
  - The proposal provides insufficient details on the potential participants in the planned events and how this will affect the research project.
  - There is little evidence of a coherent public engagement or outreach programme within the project, with virtually all the proposed communication actions relying on existing activities of the host institution and are thus not specific to the project.
  - The communication strategy is not sufficiently elaborated. The target audiences interested in the research are not identified in sufficient detail, the rationale behind the proposed communication measures and their relevance to the project is not sufficiently demonstrated. For example, the reasons why articles in local newspapers are a meaningful way of communicating the results of such a specialised philosophical topic is not convincingly demonstrated.
  - The communication activities do not have a high frequency throughout the project, being confined to the period between months 15th and 21st in the Gantt Chart.

## IMPLEMENTATION

### Weaknesses:

- The work plan is incomplete, with milestones and deliverables unidentified, and an unclear time-line for the individual activities within each work package. Scheduling is inappropriate, with some periods indicating minimal activity and others showing considerable overlap.
- Details and timing of deliverables and milestones are inadequately described in the work plan.
- The Gantt chart is not fully clear. The schedule of the milestones is not clear. The deliverables are used rather as work packages, than deliverables (each deliverable last several months). The duration of the dissemination and communication actions are not justified (for example 2 months for a seminar).
- Training and exploitation activities are not clearly shown in the work plan with adequate descriptions of allocation of resources for them.
- There is an inadequate assessment of critical path and how it can affect the work within work packages, implying a degree of dependence between component tasks.
- The Gantt chart does not offer a good overview of the actions to be implemented. The milestones and deliverables are inadequately considered. The number of deliverables is low.
- Deliverables are not clearly linked to the description of tasks undertaken in each work package, and the list is not comprehensive, e.g., it does not include academic publications.
- The work plan only contains two work packages, in line with the broad research objectives, making the plan overall very vague and in particular the absence of work packages for training, project management and dissemination is a weakness.
  
- The allocation of tasks and resources is not adequately formulated. The person-months allocated to the last work package is underestimated.
- The amount of person-months is not fully justified in relation to the research objectives.
- The intended measures for the progress monitoring are not adapted to the experience level of the researcher. A daily collaboration is not necessary.
- The progress monitoring mechanisms related to the frequency of supervision are not fully convincing.
- Insufficient details are given about the progress monitoring mechanism.
- The presentation of the management structure is too generic and lacks details.
  
- The risk management plan is very generic. It fails to identify the administrative risks. No credible mitigation plan is described.
- The risks that might threaten the achievement of the objectives and the contingency plan to be put in place should such risks occur are not sufficiently identified.
- Risks related to the results of the experimental activities are not clearly specified considering the proposed research objectives.
  
- The appropriateness of the available equipment for this specific research project is not properly analyzed.
- The proposal lacks information regarding laboratory and research facilities that would be available to the researcher, for key archaeological science components such as (next-generation) sequencing.