ADVICE FOR MARIE-CURIE APPLICATIONS

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1–2 YEARS BEFORE

- Think about where you want to go
  - Institute
    - Reputation?
    - Previous experience with MC?
    - Writing support staff?
  - Group
    - Opportunity to build network and new collaborations?
- Supervisor
  - World leader and strong experience with supervision?
  - Personal chemistry?
  - Level of interest in you? (Will he/she provide enough help?)
- Topic
  - Innovative
  - Your expertise + host expertise —> new capacity

6–12 MONTHS BEFORE

- Make contact with group
  - Visit
  - Seek out key persons/supervisor at conferences
  - Discuss possibility of application

2–3 MONTHS BEFORE

- Write a first draft outlining proposed project
  - Focus on “Excellence” part.
  - First goal is to get supervisor interested/excited about project.
- Send for feedback to supervisor

1–2 MONTHS BEFORE

- Iterate with supervisor
  - Will likely have time for 2 or 3 iterations.
- Identify writing support person

LAST MONTH

- Iterate with writing support person : At this stage mainly balancing of section lengths, captions, polishing,career development plan, buzzwords..

EXCELLENCE

- Intro (0.5 page)
  - Background, history, significance of field
  - Current open questions in field (“big” scope)
  - 1-2 sentence summary statement of project, emphasising the novelty.
- State-of-the-art (1 page)
  - Include graph, pref. from own paper.
  - Your background and expertise, and also of host.
  - Identify limitations of current research (sets stage).
- Objectives and overview (0.5 page)
  - Broad overview of objectives, link to limitations.
  - Few sentences about each objective.
  - Identify specific science questions addressed, and relation to “big ones” in introduction.
- Methodology (1 page)
  - Details! Demonstrate methodology competence/mastering of technique.

EXCELLENCE

- Originality (0.5 page)
  - What is the new and innovate things coming out? Avoid continuation of previous research.
  - Expected impact?
- Knowledge transfer to ER and host (0.5 page)
  - Transfer to you more important than transfer to host
  - Don’t forget “broad skills” : team work, leadership, communication, organisation.

EXCELLENCE : MY EVALUATION COMMENTS

- **STRENGTHS:**
- The application clearly describes the research objectives, the state of the art of research in the field, and the expected results of the planned work.
- The project is multidisciplinary…and enables to shed light on many pending question.
- The project is timely, original and contains innovative aspects.
- The project is feasible, considering the researcher's experience
- The applicant has demonstrated capacity and experience, resulting in a good number of publications. The applicant's leadership qualities are well demonstrated, including his initiative to pursue independent research and international collaborations; this fellowship will help him reach professional maturity, broadening his expertise toward new fields.
- The supervisor is a world leader in the field. He has a high track record of publications, and numerous awards. He is involved in many international collaborations. He has excellent expertise in supervising students.
- The hosting arrangements are excellent; the very stimulating and dynamical atmosphere of the research group offers a very good scenario.
- **WEAKNESSES:**
- The impact of uncertainties in the underlying model..[]..is not clearly described in the proposal.
- The project is concentrated on development of code. However, it does not focus enough on the observables which will be produced. Some factors are not considered, e.g how magnetism would influence the results.

IMPACT : MY EVALUATION COMMENTS

- **STRENGTHS:**
- The proposal convincingly describes the enhancement of specific skills which are expected to be gained by the researcher. The training in ..[]…are indeed in high demand in academia and in the private sector. A number of global transferable capacities such as teaching and other complementary skills will also enhance the applicant's career prospects.
- The applicant will have the opportunity to broaden his network of international collaborations.
- The application describes an appropriate dissemination plan of the results of the project.
- Concrete actions are proposed to communicate results to the general public. Since the fellow already has a strong experience in outreach activities directed to the general public and schools, this adds credibility to the proposed actions.
- **WEAKNESS:**
- The number of planned scientific articles (2) is rather low.

IMPLEMENTATION : MY EVALUATION COMMENTS

- **STRENGTHS:**
- The research is well structured in work packages.
- The management structure takes into account the most important aspects, such as the career development plan and the financial management.
- Risks related to the planned code developments are properly identified.
- All the necessary infrastructure is convincingly detailed in the proposal.
- The host organisation has demonstrated operational capacity.
- The complementary skills of the supervisor and the applicant offer a very good opportunity to extract high-impact scientific results.

- **WEAKNESS:**
- The project deliverables are not sufficiently ambitious.

WRITING STYLE

- Make it readable!
  - I used cursive, bold, and color for most important sentences.
  - Bullet lists
    - Short paragraphs
- Need to mix “pedagogical and simple” style with “detail” style.
- Always avoid vagueness (such as “we will calculate one or two models..”)

Objectives and overview. Our proposed programme is to *integrate state-of-the-art neutrino-driven, multi-D SN explosion modelling with state-of-the-art SN RT modelling.* This development will remove the two major limitations of models computed so far, 1D and artificially triggered explosions. Specifically, we envision three distinct components to this task.

Objective 1 (Work Package 1): ***Perform 1D modelling of neutrino-driven electron capture SNe.*** Our first objective, to be addressed in Work Package 1, is to use to code in its current 1D capability to compute and analyse

We will add significant knowledge to the research field from all three subprojects:

- ***Knowledge of how to construct efficient and stable algorithms for multi-D RT modelling***. This is an important addition to numerical theory and RT computing, and has broad potential application also outside the SN field, e.g. for stellar winds, Active Galactic Nuclei, and accretion disks.
- ***Knowledge of how modern multi-D explosion models compare with observations***. Successes and failures will provide critical feedback on modern stellar evolution and explosion models, and will allow us to finally approach a solution to a 4-decade mystery of understanding the SN explosion mechanism.
- ***Knowledge of whether the unexplained class of sub-luminous Type II SNe corresponds to electron capture explosions of 8-10 M_{sun} stars.*** Answering this question will have broad implications both for

SUMMARY AND GENERAL ADVICE

- MC applications are to significant part about "**ticking boxes**".
- Reviewing mainly by non-experts in specific field : be **confident and ambitious**.
- Carefully address **pitfalls/risks/uncertainties**, explain why you think they will not thwart project.
- Better to mention **many things/examples** than to explain a few in great length.
- For each planned activity, can you **link in an experience from your CV** that shows that you will succeed?
- The **competence of host and supervisor** are as important as yours.
- You need help from people who know the business : the **writing advisor** is invaluable. Most of "strengths" in my evaluation were on points the advisor suggested!
- Application takes about **1 month of full-time work**. Reserve all of August and check that supervisor and writing support person are available for iterations!

- **GOOD LUCK!**