

中央研究院 111 年度「關鍵突破研究計畫」計畫書

2022 Academia Sinica Grand Challenge Program (GCP) Proposal

申請組別 Division	<input type="checkbox"/> 數理組 Mathematics and Physical Sciences <input type="checkbox"/> 生命組 Life Sciences <input type="checkbox"/> 人文社會組 Humanities and Social Sciences		
計畫類別 GCP Category	<input type="checkbox"/> 1.個人型 Individual <input type="checkbox"/> 2.單一整合型 Integrated Team <input type="checkbox"/> 3.所、中心問題導向團隊型 Institutional Problem-Solving		
計畫名稱 Project Title	中文:		
	English:		
計畫(總)主持人 Project PI or Program Director	中文:	職稱 Position	
	English:	申請單位 Affiliation	
共同 計畫主持人 Project Co-PI Sub-Project PI	中文 / English: 1.	職稱/單位 Position/Affiliation	
	2.		
	3.		
計畫經費 含自提額度與來源 單位: 新臺幣千元 Total Budget incl. Matching Amount & Source Unit: thousand NTD	第一年 Year 1: <i>e.g.</i> 25,000 千元	第二年 Year 2:	
	自提 Matching: <i>e.g.</i> 5,000 千元 來源 Source: <i>e.g.</i> 所內業務費	自提 Matching: 來源 Source:	
	第三年 Year 3:	第四年 Year 4:	
	自提 Matching: 來源 Source:	自提 Matching: 來源 Source:	
	第五年 (視前 4 年表現另核定) Year 5, contingent upon satisfactory performance		
計畫聯絡人 Project Contact Person	Email:		
	Tel:		
計畫關鍵詞 Keywords	中文: English:		

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計畫名稱 (中文):

Project Title (English):

計畫(總)主持人 Project PI or Program Director:

申請單位 Affiliation:

計畫類別 GCP Category:

1. Executive Summary and Chinese Abstract

Please address each of the following questions briefly and precisely:

- 1.1 What is the grand challenge problem to be addressed? Which part of the problem will be solved?
- 1.2 What is your major idea? How innovative it is? How are you going to solve the problem you identified?
- 1.3 How much impact you will make after the 5-year funding period, if the project is successful.

In addition to an Executive Summary answering to the above points in a total of **≤ 250 English words**, provide also a **Chinese Abstract** based on the above statements in less than 500 words.

2. Research Plan

- 2.1 **The problem to be solved.** Define the identified grand challenge problem(s), focusing on its importance. Describe the state-of-the-art and identify the current bottleneck. (*about half a page recommended*)
- 2.2 **The innovative ideas proposed.** Define the specific aims of the project. Specifically highlight the innovative approach(es) you propose, including its rationale, originality, and scientific merit. (*about half a page recommended, to be elaborated later in Section 2.4*)
- 2.3 **The potential impact of the work.** Describe how it may lead to a breakthrough and transform the field if the project is successful. Focus on its scientific and/or societal impact. (*about half a page recommended*)
- 2.4 **Plans to test the ideas.** Describe the research approaches in each specific aim. Identify the milestones and the timeline of accomplishing them. Focus on the logic and scientific or technical challenges.

Also describe international competitiveness of your project and the expertise of the team you assembled. For team projects, provide a succinct description of how your research team is organized and how different components of the projects are coordinated; how the expertise of your co-PIs and collaborators is essential to this project and complements one another. Note that Supporting Letter(s) from collaborator(s) affirming individual commitment to the designated roles should be submitted together with this proposal.

*The total page limit for this section including references is **ten** pages for both individual and team projects, irrespective of how many component projects or co-PIs; by A4 size, 1 inch or 2.54 cm margins for all sides, single spaced, font: Times New Roman or Calibri, 11 point. Smaller font size 9 or 10 is allowed only for Figure legend and Bibliography.*

3. Budget Plan and Justification

年度 Year		1	2	3	4	5
業務費 Operating Expenses (A)	教育訓練費 Training	International				
		Domestic				
		Mainland China				
	旅費 Travel	International				
		Domestic				
		Mainland China				
	臨時人員酬金 Personnel Salary					
	研究相關耗材費用 Consumables					
	業務費總額 Total (A)					
自提配合款 Matching (a)						
機械(儀器) 設備費 Equipment (B)	非資訊相關 Non-Computer Item					
	資訊相關 Computer-related Item					
	設備費總額 Total (B)					
	自提配合款 Matching (b)					
獎補助費 Graduate Student Stipend (C)						
總金額 Total (T) = (A)+(B)+(C)						
自提配合款 Matching (M) = (a)+(b)						
向院方申請總額 Total Requested (T-M)						

*單位: 新臺幣千元 *Unit: thousand NTD; 5th year funding is subject to satisfactory performance

Briefly justify the total budget requested and how it will be distributed among the co-PIs and PIs for integrated team and institutional based projects. For institutional based projects, describe the amount and source of matching support, why it is deemed appropriate, and any anticipated administrative problem. Although matching support is not required for individual and other integrated team projects, disclose if available and describe how it will be applied under what terms to the benefits of the intended work, as deemed appropriate.

*The Total Budget Plan (using Table above) and the descriptive justifications to be provided should not exceed **one** page.*

4. Summary of Previous Research Accomplishments

Summarize and highlight your previous research accomplishments in the **last five years**, paying particular attention to describing the respective outcome from each of the previous grant supports (include the funding sources and grant number) for all accomplishments described here. Do not include manuscripts in preparation or submitted.

簡述個人過去 5 年的具體學術表現與研究成果，請註明各項成果由哪些計畫(含院內外)的經費補助產出，並列出其計畫編號。

*The page limit for this section is **one** page for each PI and Co-PI(s).*

5. Biographical Sketch (for Division of Mathematics and Physical Sciences & Division of Life Sciences), or Curriculum Vitae (CV, for Division of Humanities and Social Sciences)

5.1 Each PI and co-PI should use the template provided in the next page to prepare their **Biographical Sketch**, which should include among others:

- i) a **Personal Statement** - brief self-introduction of research path/career in 200-300 words;
- ii) **Contributions to Science** - a summary of major research achievements by referring to selected key publications and other forms of contributions, their significance and impact;
- iii) **Complete/Selected List of Recent Publications** - selected key publications can be combined with a more complete list of publications in the last 5 years, but keep to the total page limit

5.2 For PIs in Division of Humanities and Social Sciences using an alternative **CV** format, the content should include Contact Information, Current Affiliation and Title, Education and Professional Experiences, Research Interests, Awards and Honors, and Selected Publication List.

個人簡歷 應含 聯絡資訊、所屬單位與職稱、學經歷、研究領域、獎項及榮譽、代表性著作目錄

*This section including list of publications should not exceed **four** pages for each PI and co-PIs.*

BIOGRAPHICAL SKETCH

NAME:

中文姓名:

INSTITUTE/RESEARCH CENTER:

Current POSITION:

EDUCATION (Begin with baccalaureate or other initial professional education)

INSTITUTION AND LOCATION	DEGREE	DURATION MM/YY-MM/YY	FIELD OF STUDY

EMPLOYMENT (Include postdoctoral training)

INSTITUTION AND LOCATION	POSITION TITLE	DURATION MM/YY-MM/YY	FIELD OF STUDY

I. PERSONAL STATEMENT

A brief self-introduction of research path/career, 200-300 words

II. HONORS

Include Professional distinctions and service, honors and selected speaking invitations

III. CONTRIBUTIONS TO SCIENCE

Summarize major research achievements and describe their significance and impact

IV. LIST OF PUBLISHED WORK

Provide a complete or selected list of recent (last 5 years) publications to keep within the total four-pages limit. Earlier key publications can also be provided here, or under item III above.

Total should not exceed 4 pages

6. List of Current and Pending Grant Support

Please list any current and pending projects/proposals funded by Academia Sinica and external agencies in the last three years (from 2019-2021). Any incomplete information may adversely affect the consideration of this proposal. Please be reminded that applicants should not submit the same proposal to multiple funding sources at Academia Sinica and/or to external funding agencies at the same time.

請列舉近 3 年所執行或申請中之院內、外研究計畫及其相關資料，資訊不足者將影響審查。請勿以同一計畫書同時向本院不同計畫及院外補助機關提出申請補助。

主持人/共同主持人 Principal Investigator/co-PI: _____`

1	<p>(1) Funding Agency and Project Type 補助單位及計畫類型: 中研院/科技部 個人型/整合型</p> <p>(2) Grant Title and number 計畫名稱與編號:</p> <ul style="list-style-type: none"> ● Status 計畫狀態: <input type="checkbox"/> A. Current 執行中 <input type="checkbox"/> B. Pending 申請中 ● Research Role 計畫擔任角色: <input type="checkbox"/> A. Project PI/Program Director 計畫(總)主持人 <input type="checkbox"/> B. co-PI 計畫共同主持人 <input type="checkbox"/> C. Subproject PI/co-PI 分支計畫(共同)主持人 <p>(3) Project Period 執行期間: _____(YYYY/MM) to _____(YYYY/MM)</p> <p>(4) Funding Amount in thousands of NTD 補助總額 (仟元)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Year 年度</th> <th style="width: 40%;">Total Project Amount 總研究經費</th> <th style="width: 50%;">Individual Project Amount 個人研究經費</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>(5) Is there any relationship between this project/proposal and the Grand Challenge Program for which you are applying? 此計畫是否與本次申請計畫有相關? <input type="checkbox"/> No <input type="checkbox"/> Yes. (Please specify details 請敘明其關聯性)</p>	Year 年度	Total Project Amount 總研究經費	Individual Project Amount 個人研究經費									
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*Extend this form as necessary to include all funding sources.