Application Guide for 2022 Key Projects of Guangdong-Shenzhen Collaborative Fund

I. Application Requirements

(I) The leading host application institution must a provincial fund host institution within Guangdong Province, and the key projects of Guangdong-Shenzhen Collaborative Fund must be led by the host institutions in Shenzhen or the host institutions in Shenzhen must participate in the cooperative application with at least 30% share of the funding.

(II) The applicant should be a current employed and in-service staff of the host institution or staff employed by two organizations (at least one of the following certificates must be uploaded, including the certificate of employment at the supporting institution, employment contract, social security proof in recent three months and payment certificate of individual income tax).

(III) The applicant is the principle investigator in charge of the project and must have the doctorate or the associate senior job title and above. In addition, the applicant should have presided over national or provincial science and technology programs (including National Natural Science Foundation of China and Provincial Fund Projects) or city-level key research projects (the diploma or certificate of job title, project contract, assignment brief or conclusion reply letter must be uploaded on the system).

(IV) The applicant should meet the application requirements in the text of the Notification.

II. Award Size and Implementation Period

The project award size is **RMB 1,000,000/project**, and the implementation period is generally **3 years**. The project fund is appropriated at a time.

III. Requirements for expected results

(1) The ability of project team members to undertake national-level science and technology plans and funds in their disciplinary fields has been greatly enhanced to promote regional cooperation in science and technology in the Guangdong-Hong Kong-Macao Greater Bay Area.

(2) Achieve breakthroughs in the research of key scientific problems to support the development of key core technologies.

(2) At least two high-quality papers or patent results published in national science and technology journals with international impact, international top-level or important science and technology journals recognized by the industry, as well as papers presented at top-level academic conferences at home and abroad (referred to as "three types of high-quality papers") (to be acknowledged as supported by this provincial-municipal collaborative fund projects), or apply for at least two relevant invention patents. No less than one scientific and technical report shall be submitted (must be associated with the funding).

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(3) Encourage the formation of diversified research results in monograph publication, standards and norms, personnel training and application of results.

IV. Supported Fields and Directions

Table 1: Application Guide and Direction List of Key Projects of Guangdong-Shenzhen Collaborative Fund

List of Supported Fields for the **2022** Key Projects of Guangdong-Shenzhen Collaborative Fund

Application Code	Supported Field	Subject Code
(I) Mathematical and Physical Sciences and Cross-frontier Fields (3)		
SZB0101	Research on multi-agent digital economy and network games	A01
SZB0102	Frontier research on quantum information technology	A05
SZB0103	Engineering modeling and its massively parallel computing	A01
(II) Electronic Information Fields (11)		
SZB0201	Research on the method for gas and smoke online monitoring based on new optical fiber	F05
SZB0202	Space-air-ground-sea integrated network and key technologies	F01
SZB0203	Transmission theories and key technologies for next-generation mobile communications and networks	F01
SZB0204	Research on believable AI algorithm and its application in safe autonomous driving	F03
SZB0205	Integrative computational methods for single-cell multi-omics data	F02
SZB0206	Research on key technologies for multi-robot cooperative operation based on BeiDou	F03
SZB0207	Research on rapid detection technology for multi-functional optical microfluidic chip	F05
SZB0208	Design, preparation and performance characterization technologies for advanced encapsulating materials and structures	F04
SZB0209	Research on the construction and training method for a deep learning model for large-scale distributed multi-agent systems	F02
SZB0210	Research on key technology for intelligent marine exploration systems based on highly coherent fiber laser acoustic detection	F05
SZB0211	Research on public resource service and early warning decision technologies based on big data technology	F02
(III) Advanced Manufacturing Fields (4)		
SZB0301	Research on rigid-flexible coupling hybrid collaborative robot	E05
SZB0302	Research on robotic technology for interventional operation	F03

SZB0303	Research on high-performance and long-life microgenerators based on structural superlubricity technology	E05
SZB0304	Research on additive manufacturing technologies for aeroengine dissimilar metal cooling runner structures	E05
(IV) New Materials and Energy & Chemical Fields (5)		
SZB0401	Research on current collectors and anode materials for lithium-ion batteries	E02
SZB0402	Research on preparation of personalized titanium alloy implants and their application	E01
SZB0403	Research on key materials and technologies for hydrogen production from seawater	B01
SZB0404	Research on efficient catalytic technologies for electrochemical reduction of carbon dioxide	B03
SZB0405	Research on porous degradable medical metal and its application in bone repair	E01
(V) Marine Science and Environmental Ecology Fields (2)		
SZB0501	Carbon source-sink process and regulation mechanism of marine ecosystem in Guangdong-Hong Kong-Macao Greater Bay Area	D06
SZB0502	Research on key technologies for preparation of marine active compounds based on high-throughput screening and multi-omics methods	D06
(VI) Biological and Agricultural Fields (1)		
SZB0601	Research on molecular mechanisms of crop stress tolerance and efficient resource utilization	C13
(VII) Population Health Fields (6)		
SZB0701	Research on the efficacy evaluation and effect mechanism of “prescription-syndrome-efficacy” in TCM proved recipes for metabolic diseases	H27/H28
SZB0702	Research on early precise diagnosis of neurodegenerative diseases	H18
SZB0703	Research on new molecular markers and key technologies for pathogen detection of infectious diseases	H19/H20
SZB0704	Research on new prevention and treatment strategies of uterine inflammatory diseases	H04
SZB0705	Research on tumor immune microenvironment and immunotherapy	H16
SZB0706	Research on the mechanism of the influence of gestational exposure on fetal development and intervention strategies	H04