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1994年10月

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谨以本书献给热心祖国科学事业的小平同志及为振兴中华科学事业而无私奉献和顽强拼搏的北京正负电子对撞机的建设者。

This book is dedicated to Comrade Deng Xiaoping who showed much concern for the construction of the Beijing Electron Positron Collider (BEPC) and all of those who contributed to the successful completion of the project for the reinvigoration of science and technology in China.

编者的话

北京正负电子对撞机建成已近六年了。1990 年 7 月，我们的对撞机达到设计指标，通过了国家技术鉴定和验收，中外专家开始在上面进行实验工作。这标志着我国在这个前沿科技领域占有了一席之地。为永远纪念在我们敬爱的小平同志和党中央、国务院的关怀下，工程建设者为振兴祖国科学事业奉献和拼搏所创的业绩，北京正负电子对撞机工程领导小组办公室就着手编撰本书，以忠实记录中国科学史上这件十分有意义的事情。党和国家卓越的领导人、新中国科技战线杰出的领导者聂荣臻元帅为本书作了序。

为使本书内容更完整、更充实，编者希望能把科学家们在北京正负电子对撞机上作出的重要科学成果也与对撞机建设的业绩一并载入本书，因此放慢了编撰工作。编者十分高兴，在对撞机建成后的几年里，科学家在这台我国最大的加速器上不断取得科学成果，其中 τ 粒子质量的测量是国际粒子物理界公认的 1992 年至 1993 年取得的最重要的成果之一。今天，我们感到骄傲的是，六年前我们在此科学研究领域占有了一席之地，经过努力至今我们仍保持着最前沿的地位。

今年 10 月正值小平同志和其他中央领导同志为北京正负电子对撞机工程奠基十周年，编者谨以此书作为对中国科技发展史上这一件大事的纪念。

为本书作序的聂荣臻元帅已经离开了我们，编者也愿以本书作为对他的怀念。

The Editor's Remarks

It has been nearly six years since the completion of the project of the Beijing Electron Positron Collider. In July 1990,the Beijing Electron Positron Collider passed the national technical appraisal and accreditation since its operation accorded well with all of the expected designing objectives. The ensuring operation of its experiment service to scientists from both home and abroad signalled that China had secured a foothold in this frontier area of science and technology. In order to commemorate the profound concern shown by Comrade Deng Xiaoping, the Party's Central Committee and the State Council towards this unprecedented undertaking in China and the great achievements of the project constructors as well as their dedication spirit and lofty idea of reinvigorating China's science and technology development, the Office of the Project Leading Group of the BEPC set out to compile this book to provide a faithful and worthwhile record of this momentous event in the history of China's science and technology development. Marshal Nie Rongzhen, a prominent figure on China's political, science and technology and military stages contributed a preface to this work.

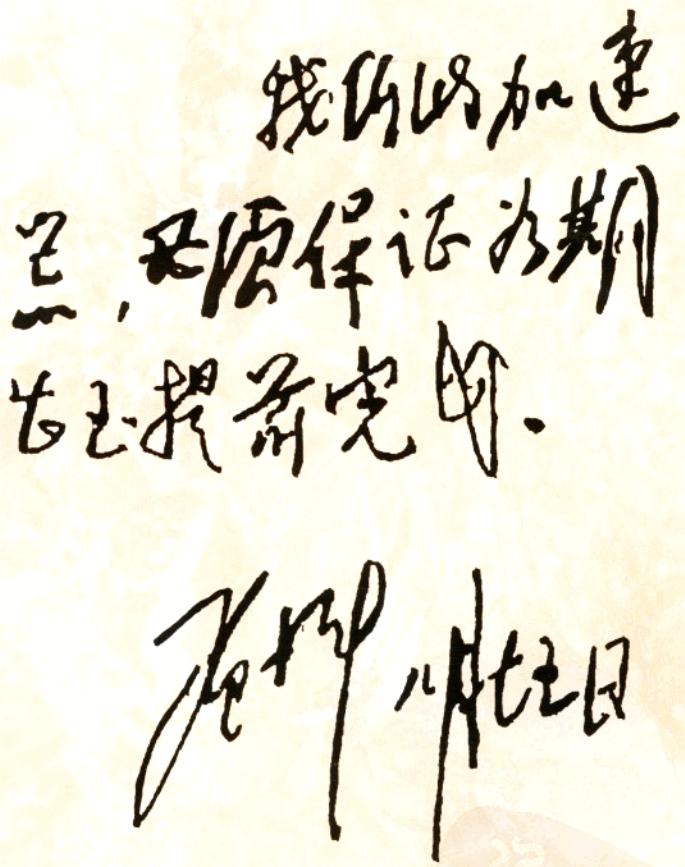
This book could have come out of press at a much earlier date if we had not sought to incorporate some of the most important scientific results made on the facility, making its contents more complete and substantial. This slow down of pace is more than rewarded by the continuous rush of excellent discoveries resulting from experiments on this domestically largest facility, among them the measurement of τ particle mass representing one of the most important achievements in the world particle physics community in1992. Today, we feel proud to claim that the status we established six years ago in this frontier area still maintains an upstream trend owing to the enduring efforts of the Chinese scientists and engineers.

On the occasion of the 10th anniversary of the project's ground breaking ceremony presided over by Comrade Deng Xiaoping and other leaders of the Central Government, the editors of this work wish to dedicate it to this historical event of China's Science and Technology development. We also wish to dedicate this work to the late Marshal Nie Rongzhen, who bequeathed to us his invaluable preface for this work.

这件事右耳再也记不了。

周恩来

一九七二年九月十一日



周恩来同志1972年给张文裕等信中的指示和小平同志1984年在北京正负电子对撞机工程简报上的批示

Instructions by Comrade Zhou Enlai in his letter to Zhang Wenyu in 1972 and by Comrade Deng Xiaoping which he annotated in BEPC Project Bulletin in 1984

中國必須發展
自己的高科技

江澤民

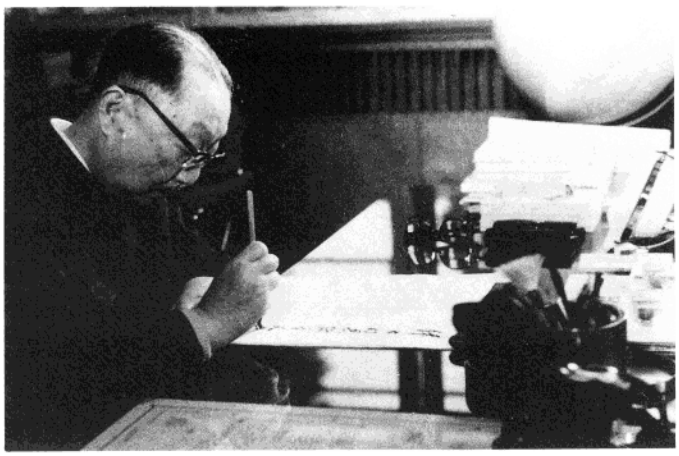
一九九四年十月十六日

江泽民同志为本书的题词
Inscription by Comrade Jiang Zemin

自力更生
艰苦创业
发展高科技

李鹏
一九九四年
十月

李鹏同志为本书的题词
Inscription by Comrade Li Peng



序

人类对物质结构认识的每一次重大突破，都会对人类社会的发展产生重大影响。本世纪30年代对原子核的研究，开辟了人类利用原子能的时代。高能物理是研究比原子核更深层次物质结构的科学。一旦这个微观层次的奥秘被揭示，无疑也将对人类未来的文明产生重大的影响。虽然中国的科技和经济目前都还落后，但中国科学家有志与世界科学家一道，为探索微观世界，发展科学、贡献自己的力量。

中国的高能物理研究和高能加速器的研制，经过了三十多年坎坷的历程之后，第一台高能加速器——北京正负电子对撞机的建设计划终于在1983年4月获政府正式批准，并于1984年10月7日由小平等中央领导同志奠基破土动工。

在党中央、国务院和小平同志的直接关怀下，中国科学院高能物理研究所和全国几百个工厂、研究所、高等院校的上万名科技人员、工人、干部和解放军官兵不为报酬，万众一心，奋发进取，在充分吸取世界先进技术的基础上，依靠我们自己的力量，团结协作，发挥中华民族的聪明才智和大无畏气概，夜以继日，顽强拼搏，克服了重重困难，精心设计、研制、安装和调试，仅用四年时间，就建成了具有世界先进水平的北京正负电子对撞机，实现了我国科学家和恩来同志等老一代革命家的宿愿，为发展我国的科学事业作出了杰出贡献。这一瞩目的科学技术成就也得到了世界高能物理学界的高度评价。中国在高能加速器这一高技术领域占有了一席之地。

北京正负电子对撞机工程领导小组受党中央、国务院的委托，全面组织和领导了这项工程建设。国家计委、国家经委、国务院重大技术装备领导小组等十几个部委及中国科学院、北京市人民政府给予了大力支持，加上世界高能物理学界，特别是美国各高能物理实验中心的帮助，使这项工程进行如此迅速和节省，质量如此之好，在国内乃至世界都是少有的。正如小平同志视察这项工程时所说："我们有些方面落后，但不是一切都落后，这个工程本身就证明了这一点"。江泽民、杨尚昆、李鹏、万里、姚依林、乔石、宋平、王震等党和国家领导人也都前往祝贺它的成功。我听了也非常高兴。这是我国科学家继原子弹、氢弹、导弹、人造卫星、核潜艇等之后的又一巨大科技成就。中国人民永

远不会忘记北京正负电子对撞机建设者为振兴中华科学事业无私奉献的精神，也不会忘记世界高能物理学界朋友们对北京正负电子对撞机的支持和帮助。

一九九〇年八月五日

Preface

Every major breakthrough by human beings in the understanding of matter structure would have important impact on the development of human society. The achievements made in the study of atomic nucleus in the 1930's opened up the era of human utilization of atomic energy. High energy physics studies matter structure on a level deeper than that of atomic nucleus. The revelation of the mystery on this microscopic level will undoubtedly produce significant impact on the advancement of human civilization. Although China is still not strong in its scientific and economic development, the Chinese scientists have the will to probe the mystery of the microscopic world together with the scientists of other countries, and to contribute their efforts and wisdom to the advancement of sciences.

After many twists and turns in the past 30 years, the plan for the construction of a high energy accelerator in China finally got approved by the Government of China. On October 7, 1984, Comrade Deng Xiaoping and other Party and State leaders attended the groundbreaking ceremony for the construction of the Beijing Electron–Positron Collider.

Under the direct concern of the Party's Central Committee, the State Council and Comrade Deng Xiaoping himself, more than ten thousand people including scientific personnels, workers, carders and soldiers from the Institute of High Energy Physics of the Chinese Academy of Sciences (CAS), a few hundreds of factories, research institutes, universities and military units participated in the construction. Based on the absorption of the world advanced technology, through courageous work and close collaboration, and by mainly relying on their own efforts, the construction of the Beijing Electron–Positron Collider, a world advanced level facility, was completed in only four years time, thus fulfilling the dream long cherished by so many Chinese scientists, and revolutionaries of the older generations, among them the late Premier Zhou Enlai. This scientific achievement not only received high appraisals from the international high energy physics community, but also enabled China to establish a foothold in the international high energy physics research.

The Party's Central Committee and the State Council showed much concern for the construction of the facility. They entrusted the Project Leading Group with the overall responsibility of organizing the entire construction of the project. Over a dozen line ministries including the State Planning Commission, the state Economic Commission, the Leading Group of Major Technological Equipments of the State Council, as well as the Chinese Academy of Sciences and the Beijing Municipal Government provided strong assistance to the construction. All this, plus the support from the international high energy physics conmmunity, particularly that from the U.S. high energy physics laboratories enabled the construction proceeded smoothly at high speed, low cost,and high quality. This has been rarely seen both in China and abroad. While visiting the facility, Comrade Deng Xiaoping specifically remarked on this, "It is true that we are backward in some fields, but certainly not in all fields. The successful construction of this project itself is an example." Other Party and State leaders including Comrade Jiang Zemin, Yang Shangkun, Li Peng ,Wan Li, Yao Yilin, Qiao Shi, Song Ping ,Wang Zhen, etc. have also paid visits to the facility and given their congratulations and compliments. I am also very happy with the success. I should say that this is another significant scientific achievement accomplished by the Chinese scientists since the achievements made in the research and development of atomic bomb, hydrogen bomb, missile, satellite and nuclear submarine, etc. The Chinese people will never forget those who have contributed to the construction of the project for the development of science and technology in China, nor will they ever forget the friends from the international high energy physics community who have rendered so much valuable support and assistance to the construction of the Beijing Electron–Positron Collider.

Nie Rongzhen

August 5, 1990

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