



何梁何利基金纪念文集

A COLLECTION OF ESSAYS
IN COMMEMORATION OF
HO LEUNG HO LEE FOUNDATION

(2007—2008)

何梁何利基金评选委员会 编
EDITED BY THE SELECTION BOARD OF
HO LEUNG HO LEE FOUNDATION

 中国科学技术出版社
CHINA SCIENCE AND TECHNOLOGY PRESS

图书在版编目(CIP)数据

何梁何利基金纪念文集:2007—2008/何梁何利基金
评选委员会编. —北京:中国科学技术出版社,2009. 10
ISBN 978 - 7 - 5046 - 5510 - 3

I. 何… II. 何… III. 自然科学 - 基金 - 中国 -
2007 ~ 2008 - 纪念文集 IV. G322. 25 - 53

中国版本图书馆 CIP 数据核字(2009)第 160046 号

本社图书贴有防伪标志,未贴为盗版。

编辑委员会

顾问 朱丽兰 赵沁平 杨纲凯

主编 段瑞春

编委 (按姓氏笔画为序)

王 倬 孙 枢 朱道本 师昌绪 许靖华

李国章 杨祖佑 张恭庆 陈佳洱 顾方舟

高 文 钱绍钧 梁栋材 程 序 曾庆存

编辑 邓大为

EDITORIAL BOARD

Advisers Zhu Lilan Zhao Qinping Yang Gangkai

Chief Editor Duan Ruichun

Board Directors James Chuo Wang Sun Shu Zhu Daoben

Shi Changxu Kenneth J. Hsu Arthur K. C. Li

Yang Zuyou Zhang Gongqing Chen Jiaer

Gu Fangzhou Gao Wen Qian Shaojun

Liang Dongcai Cheng Xu Zeng Qingcun

Editor Deng Dawei

责任编辑:吕秀齐

封面设计:赵一东

责任校对:孟华英 赵丽英 韩 玲 凌红霞

责任印制:安利平

序言一

信托委员会主席、评选委员会主任 朱丽兰

何梁何利基金是香港爱国金融实业家何善衡、梁铨琚、何添、利国伟先生捐款创立的科学技术奖励基金。15年来,何梁何利基金以其规范的运作、严格的标准、最具公信力和权威性的评选记录,在国内和国际取得良好声誉,已成为国内规模最大、影响最广和最具权威性的社会力量设立的科学与技术大奖。通过奖励杰出科学家和优秀科技工作者,促进了中国的科学与技术发展,倡导了尊重知识、尊重人才、崇尚科学的良好社会风尚,激励科技工作者勇攀科学技术高峰,为祖国科技事业做出了宝贵贡献。基金创立者“在中国的土地上,建立中国的奖励基金,奖励中国的杰出科技工作者”的崇高愿景,已经在祖国科技界深深扎根。

值得一提的是,2006年以来,何梁何利基金伴随祖国建设创新型国家的主旋律,与时俱进,开拓创新,对评选工作施行了一年一小步、三年一大步的改革方案,调整了奖励结构,优化了评选标准,使基金的奖励体制更加科学合理,评选程序 and 标准更加规范与完善,基金焕发出新的生机与活力。

在喜迎基金成立15周年的时刻,《何梁何利基金纪念文集(2005—2006)》、《何梁何利基金纪念文集(2007—2008)》(以下简称《纪念文集》)与读者见面了。在这两卷《纪念文集》中收录的党和国家领导人在颁奖大会上的重要讲话,充分体现了中央人民政府和香港特别行政区政府对基金的亲切关怀和指导;有关基金评选工作方针和政策的有关报告和材料,介绍了何梁何利基金近年来开拓进取、改革创新的坚实步伐;“科学与技术成就奖”、“科学与技术进步奖”、“科学与技术创新奖”获奖科技工作者代表的精品力作,是全体获奖科学家崇高的科学思想和精湛学术造诣的缩影,展现出我国广大科技工作者进军当代科学前沿和产业高端,推进创新型国家建设的壮丽画卷。

何梁何利基金的成功,归功于中央人民政府和香港特别行政区政府的亲切指导,归功于科学技术界、教育界和社会各界的大力支持!光荣属于基金捐款者、创立者和承继者;光荣属于为祖国科技事业做出杰出贡献的所有获奖人;光荣属于

评选委员会委员、专业评委和所有志愿服务者。

但成功只是历史的记载,光荣意味着更大的责任。创建国际一流的科学技术大奖,鼓舞更多中华儿女攀登科学技术高峰,加快我国现代化建设的进程,这是何梁何利基金的崇高愿景,也是基金同仁肩负的历史责任。

星河欲转千帆舞,九万里风鹏正举。一个在建设创新型国家征程中不断迈出新步伐的民族,一个用科学发展观指导创新实践的国家,一个朝着国际一流科学技术大奖方向前进的何梁何利基金,将不辱使命,不负重托,为祖国现代化事业和人类文明进步作出更大的贡献。

PREFACE I

Zhu Lilan, Chairwoman of Ho Leung Ho Lee Foundation's Board of
Trustees and Director of the Selection Board

Ho Leung Ho Lee Foundation was donated and founded by four patriotic financial industrialists from Hong Kong, namely Ho Sin-Hang, Leung Kau-Kui, Ho Tim and Lee Quo-Wei. In the past 15 years, the Foundation has won high reputation for its regulated operation, strict standard and credible and authoritative prize selection record, and has become China's largest and most influential and authoritative non-government prize for science and technology achievements. Through awarding outstanding scientists and researchers, the Foundation has pushed forward the development of science and technology of China, promoted the good social practice of respecting for knowledge, for talents and for science, and encouraged S & T workers to mount the peaks of science and technology and make precious contributions to the science and technology development of China. The great vision of the founders of the Foundation to "establish a Chinese foundation in Chinese territory to award outstanding Chinese scientists" has been deeply rooted in the science and technology circle of China.

Since 2006, following the main theme of building an innovative country, advancing with the time and pioneering and keeping forging ahead, Ho Leung Ho Lee Foundation has deepened the reform of selection work with the strategy of "taking a small step a year and a big step every three years", adjusted prize structure, optimized selection criteria, and realized a more scientific and reasonable awarding system and better regulated selection procedure and standard, injecting the Foundation with new vigor and vitality.

On the occasion of the 15th anniversary of the Foundation, *A Collection of Essays In Commemoration of Ho Leung Ho Lee Foundation* (2005—2006) and *A Collection of Essays In Commemoration of Ho Leung Ho Lee Foundation* (2007—2008) which have been expected for publication for a long time are finally printed. The two collections have collected the important speeches made by leaders of the CPC and the State, which are a perfect reflection of the strong support and insightful guidance given by the Central Government and the Hong Kong SAR Government, the reports and documents related to the prize selection guidelines and policies of the

Foundation, which introduce the innovation and reform of the Foundation in recent years, and the fine works of some winners of the Prize for Scientific and Technological Achievements, the Prize for Scientific and Technological Progress and the Prize for Scientific and Technological Innovation, which are a mirror of the profound scientific thoughts and marvelous academic achievements of all prize-winning scientists. The collections display a splendid scroll of Chinese S & T workers in pursuing the science and technology frontiers and industrial peaks and promoting the construction of an innovative country.

The success of Ho Leung Ho Lee Foundation shall be attributed to the wise guidance of the Central Government and the Hong Kong SAR Government and the strong support of the circle of science and technology, the circle of education and other social circles. The honor and glory go to the donators, founders and successors of the Foundation, to all prize winners who have made outstanding contributions to the science and technology advancement of China, and to the members of the Selection Board, specialized appraisers and volunteers.

However, success is a past record, and honor and glory are accompanied with greater responsibilities. To build a world class science and technology prize to encourage more Chinese people to mount the peaks of science and technology and accelerate the process of China's modernization is the lofty vision of the Ho Leung Ho Lee Foundation and a historical responsibility on the shoulders of all staff of the Foundation.

“The Milky Way desires to set a thousand sails awirl, and up I go with the ocean-spanning roc the wind rests”. Backed by a people making continuous progress on the way of building an innovative country and a nation under the guidance of the Scientific Development Outlook for innovation and practice, Ho Leung Ho Lee Foundation heading for the goal of a world class science and technology prize would not let the country down and would make greater contributions to the modernization of China and the progress of human civilization.

序言二

何梁何利基金于1994年在香港以慈善信托形式成立,不觉已踏入第十五年。

俗谚说“十年人事几番新”,正是说出了世界不断向前发展的道理。十五年前成立何梁何利基金的主要宗旨,就是希望透过奖励取得杰出成就的内地科学技术工作者,以促进国家的发展并推动国家迈向现代化。

令我们感到欣喜的是,自从祖国在1995年正式提出“科教兴国”战略后,国家在这十多年间自强不息,不断进步,无论在社会建设或科技成就方面,都取得了突出的成绩,从三峡工程、青藏铁路、载人航天工程、首次月球探测工程,以至去年的北京奥运会等,都是令国人自豪、世界触目的科技和建设成果。

随着祖国不断进步和繁荣昌盛,何梁何利基金在这十多年来,亦抱着“精益求精”的理念,在信托委员会和评选委员会的紧密合作下,对基金在操作、评奖,以至奖励的范围,都作出了不少与时并进的改革建议,并取得理想的成果。

十五年来,基金得到科技部和教育部的全力支持,以及信托委员会、评选委员会和投资委员会各成员的衷诚合作,以及各基金顾问的宝贵指导,得以畅顺和良好地运作,我们谨此表示衷心谢意。

相对于需要殚心竭力的科研工作来说,十五年只是一个很短的时间,我们有信心,在基金同人的努力下,何梁何利基金的工作必能再接再厉做得更好,继续贡献于祖国,与国家发展共同迈进。

何梁何利基金捐款人

何善衡慈善基金会有限公司

梁铨琚慈善基金会有限公司

何添基金有限公司

伟伦基金有限公司

2009年7月

PREFACE II

Established in 1994, Ho Leung Ho Lee Foundation this year celebrates its 15th anniversary.

During this period of time, there has been dynamic progress in the world around us. The central purpose for creating Ho Leung Ho Lee Foundation 15 years ago was to inspire and encourage outstanding Mainland scientists to promote development and contribute to the country's modernization drive.

In what has been a source of great joy and satisfaction for us, the years since the Motherland's formal introduction of the "national revival through science and education" strategy in 1995 have seen the country striving for advancement through unremitting efforts to achieve sustainable progress and making great strides in areas from social reconstruction to science and technology. The Three Gorges Project, the Qinghai-Tibet Railway, China's Manned Space Flight, the country's first Moon Probe Project and last year's Beijing Olympics are all significant achievements in science and development befitting the pride of the nation – and accomplishments of world renown.

Against the backdrop of the country's continuing development and growing prosperity, Ho Leung Ho Lee Foundation has over the past decade promoted the ethos of "quest for excellence", working closely with the Board of Trustees and the Selection Board to implement numerous timely restructuring recommendations covering such areas as the Foundation's operation, selection process, and eligibility criteria for prize awards. These enhancements have brought about commendable results.

In the past 15 years, the Foundation has enjoyed full support from the Ministry of Science and Technology and the Ministry of Education, and enthusiastic cooperation by members of the Board of Trustees, the Selection Board and the Investment Committee, as well as valuable input and guidance from the Foundation's advisors, making possible the smooth operation of the Foundation, for which we would like to express our heartfelt appreciation.

Compared with scientific research which stretches back into history and continues with total commitment of time and energy into the future 15 years is just the blink of an eye. However, we are confident that through the joint efforts of our colleagues, Ho Leung Ho Lee Foundation will build upon its past success and continue to contribute to the Motherland, keeping pace with the development of the nation.

Ho Leung Ho Lee Foundation's donors

The S H Ho Foundation Limited
The Leung Kau Kui Foundation Limited
Ho Tim Foundation Limited
Wei Lun Foundation Limited

July 2009

目 录

序言一	朱丽兰
序言二	何梁何利基金捐款人
关怀与指导	
在何梁何利基金 2007 年度颁奖大会上的讲话	陈至立(3)
在何梁何利基金 2008 年度颁奖大会上的讲话	万 钢(8)
创新与发展	
在何梁何利基金 2007 年度颁奖大会上的工作报告	朱丽兰(15)
在何梁何利基金 2008 年度颁奖大会上的工作报告	朱丽兰(26)
何梁何利基金 2007 年度评选工作改革方案	段瑞春(36)
何梁何利基金 2008 年度评选工作改革方案	段瑞春(41)
科技进步与创新	
现代大跨度桥梁理念与实践	林元培(49)
四川盆地普光大型气田的发现与勘探启示	马永生 郭旭升 郭彤楼 等(73)
惯性技术的一个新的发展方向——航天器姿态控制惯性执行机构技术	房建成(95)
以信息为中心的“密码-序列-结构-功能”的定量生物学研究路线	罗辽复(117)
分子靶向治疗:肿瘤治疗的里程碑	曾益新 张晓实 刘强(136)
低碳钢奥氏体-铁素体相变中单个铁素体晶粒的生长模式	李殿中 肖纳敏 兰勇军 等(146)
磷酸钙骨水泥基生物活性材料及纳米生物材料的创新研究	刘昌胜(176)
电动车辆发展趋势及其关键技术	孙逢春 何洪文 王文伟(208)
勤奋、自信、攀登、创新——记哈木拉提·吾甫尔教授	(244)
宁夏在开发特色野生植物资源——节水耐旱观赏植物方面的研究与应用	李健(260)
靶向 DNA 修复系统:肿瘤治疗的新机遇	丁健 缪泽鸿 蒙凌华 等(278)
地质导向钻井技术概况及其在我国的研究进展	苏义脑(296)
三维整体编织复合材料的结构和主要力学性能	李嘉禄 陈利 焦亚男(309)
纳微结构药物颗粒的可控制备及其性能研究	陈建峰(326)
汽车新型能源动力系统技术战略与研发进展	欧阳明高(366)

通过一流的移动学习系统来增加混合教室情景下的交互性
..... 申瑞民 王敏娟 潘晓燕(391)

系统构建络病理论及其学科价值 吴以岭(412)

基于可变元胞动态自洽场理论研究非均相高分子体系介观动力学
..... 李璇 唐萍 张红东 等(434)

赖氨酸—纤维素吸附剂清除内毒素的体内研究 方晖 魏佼 俞耀庭(465)

斑马鱼 Dpr2 通过促进 Nodal 信号受体降解而抑制中胚层诱导
..... 张丽霞 周虎 苏颖 等(486)

通过一种新的萃取溶析结晶工艺分离提纯类质同晶甾体化合物
..... 聂强 王静康 尹秋响(499)

附 录

2007 年度何梁何利基金获奖人知识产权评价报告 (515)

2007—2008 年度何梁何利基金获奖人科技成就与创新业绩评价报告 (547)

2007—2008 年何梁何利基金“科学与技术成就奖”获得者简介 (566)

2007—2008 年何梁何利基金“科学与技术进步奖”
及“科学技术创新奖”获奖人名单(共 119 位) (581)

后 记 (586)

CONTENTS

PREFACE I	Zhu LiLan
PREFACE II	Ho Leung Ho Lee Foundation's donors
LOVING CARE AND GUIDANCE	
ADDRESS AT 2007 AWARDING CEREMONY OF HO LEUNG HO LEE FOUNDATION	Chen Zhili(5)
ADDRESS AT 2008 AWARDING CEREMONY OF HO LEUNG HO LEE FOUNDATION	Wan Gang(10)
INNOVATION AND DEVELOPMENT	
WORKING REPORT AT 2007 AWARDING CEREMONY OF HO LEUNG HO LEE FOUNDATION	Zhu Lilan(19)
WORKING REPORT AT 2008 AWARDING CEREMONY OF HO LEUNG HO LEE FOUNDATION	Zhu Lilan(30)
SELECTION WORK REFORM PLAN OF HLHL FOUNDATION IN 2007	Duan Ruichun(38)
SELECTION WORK REFORM PLAN OF HLHL FOUNDATION IN 2008	Duan Ruichun(43)
SCI-TECH PROGRESS AND INNOVATION	
THE CONCEPT AND PRACTICE OF MODERN LONG SPAN BRIDGE	Lin Yuanpei(60)
THE PUGUANG GAS FIELD;NEW GIANT DISCOVERY IN THE MATURE SICHUAN BASIN,SOUTHWEST CHINA	Ma Yongsheng Guo Xusheng Guo Tonglou, et al(78)
A NEW TREND OF INERTIAL TECHNOLOGY; INERTIA ACTUATOR TECHNOLOGY FOR SPACECRAFT ATTITUDE CONTROL	Fang Jiancheng(104)
AN INFORMATION-CENTERED QUANTITATIVE BIOLOGICAL RESEARCH APPROACH OF "CODE-SEQUENCE-STRUCTURE-FUNCTION" ...	Luo Liaofu(124)
MOLECULAR TARGETED THERAPY;A MILESTONE ON THE ROAD FOR CURING CANCER	Zeng Yixin Zhang Xiaoshi Liu Quentin(140)
GROWTH MODES OF INDIVIDUAL FERRITE GRAINS IN THE AUSTENITE TO FERRITE TRANSFORMATION OF LOW CARBON STEELS	Li Dianzhong Xiao Naming Lan Yongjun, et al(159)
CREATIVE RESEARCH ON BIOACTIVE CALCIUM PHOSPHATE CEMENTS AND NANO-BIOMEDICAL MATERIALS	Liu Changsheng(190)
THE TENDENCY AND KEY TECHNOLOGIES ANALYSIS ON ELECTRIC VEHICLE	Sun Fengchun He Hongwen Wang Wenwei(223)
DILIGENT, SELF-CONFIDENT, ENTERPRISING AND INNOVATIVE —Story of Professor Hamulati Wupuer	(251)
SUSTAINING THE METROPOLITAN LANDSCAPE BY GROWING WATER-	

CONSERVING AND DROUGHT-TOLERANT WILD PLANT SPECIES NATIVE OR INTRODUCED TO NINGXIA	Li Jian (268)
EMERGING CANCER THERAPEUTIC OPPORTUNITIES TARGET DNA-REPAIR SYSTEMS	Ding Jian Miao Zehong Meng Linghua, et al(285)
GEOSTEERING DRILLING TECHNOLOGY AND ITS DEVELOPMENT IN CHINA	Su Yinao(301)
THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF THREE DIMENSIONAL INTEGRAL BRAIDING COMPOSITES	Li Jialu Chen Li Jiao Yanan(317)
CONTROLLABLE PREPARATION AND THEIR PROPERTIES OF NANO-MICRO STRUCTURED DRUG PARTICLES	Chen Jianfeng(343)
TECHNOLOGICAL STRATEGY AND R&D PROGRESS OF NEW ENERGY POWERTRAIN OF VEHICLES	Ouyang Minggao(376)
INCREASING INTERACTIVITY IN BLENDED CLASSROOMS THROUGH A CUTTING-EDGE MOBILE LEARNING SYSTEM	Shen Ruimin Wang Minjuan Pan Xiaoyan(400)
SYSTEMIC CONSTRUCTION AND SCIENCE VALUE OF COLLATERAL DISEASE THEORY	Wu Yiling(420)
MESOSCOPIC DYNAMICS OF INHOMOGENEOUS POLYMERS BASED ON VARIABLE CELL SHAPE DYNAMIC SELF-CONSISTENT FIELD THEORY	Li Xuan Tang Ping Zhang Hongdong, et al(447)
IN VIVO STUDIES OF ENDOTOXIN REMOVAL BY LYSINE-CELLULOSE ADSORBENTS	Fang Hui Wei Jiao Yu Yaoting(474)
ZEBRAFISH Dpr2 INHIBITS MESODERM INDUCTION BY PROMOTING DEGRADATION OF NODAL RECEPTORS	Zhang Lixia Zhou Hu Su Ying, et al(492)
SEPARATION AND PURIFICATION OF TWO ISOMORPHIC STEROIDS BY A NOVEL EXTRACTIVE DROWNING OUT CRYSTALLIZATION	Nie Qiang Wang Jingkang Yin Qiuxiang(505)

APPENDICES

EVALUATION REPORT ON INTELLECTUAL PROPERTY RIGHT OF THE AWARDEES OF HO LEUNG HO LEE FOUNDATION PRIZE IN 2007	(528)
EVALUATION REPORT ON SCIENTIFIC AND TECHNOLOGICAL ACHIEVEMENTS AND INNOVATION PERFORMANCES OF THE AWARDEES OF HO LEUNG HO LEE FOUNDATION PRIZE IN 2007 AND 2008	(554)
PROFILES OF THE AWARDEES OF PRIZE FOR SCIENTIFIC AND TECHNOLOGICAL ACHIEVEMENTS OF HO LEUNG HO LEE FOUNDATION IN 2007 AND 2008	(574)
LIST OF THE AWARDEES OF PRIZE FOR SCIENCE AND TECHNOLOGY PROGRESS AND PRIZE FOR SCIENCE AND TECHNOLOGY INNOVATION OF HO LEUNG HO LEE FOUNDATION FROM 2007 TO 2008(TOTAL 119)	(583)
AFTERWORD	(587)

关怀与指导

LOVING CARE AND
GUIDANCE

在何梁何利基金 2007 年度颁奖 大会上的讲话

国务委员 陈至立
(2007 年 10 月 31 日)

各位专家,何梁何利基金各位代表
各位来宾,同志们,朋友们:

今天,在洋溢欢乐和喜庆的气氛中,何梁何利基金隆重举行颁奖大会,向荣获 2007 年度何梁何利基金“科学与技术成就奖”的林元培院士、马永生博士,以及 42 位荣获“科学与技术进步奖”,21 位荣获“科学技术创新奖”的优秀科技工作者颁奖。这是我国科技界、教育界的一大盛事。这 65 位获奖科学家,为我国科学技术发展和科技进步作出了突出贡献。在此,我代表国务院,向全体获奖的优秀科技工作者表示热烈的祝贺和崇高敬意!向何梁何利基金创立者和捐款人热诚支持祖国科技事业的义举表示衷心的感谢!向何梁何利基金信托委员会、投资委员会、评选委员会的全体人员所做的工作表示深深的谢意!

刚才,基金评选委员会主任朱丽兰同志作了很好的工作报告,介绍了何梁何利基金在建设创新型国家、落实科教兴国和人才强国战略中发挥积极作用的有关情况,令人振奋,令人鼓舞。林元培院士和马永生博士的发言,表达了全体获奖科技工作者的心声,感人肺腑,催人奋进。

当前,我们正处在一个前所未有的创新密集时代。科学技术前沿孕育着革命性突破,新技术群和新产业群竞相崛起。强大的创新冲击波,深刻影响着经济和社会的发展进程。实践证明,加速科学技术发展,人是最重要、最宝贵的第一资源。提高自主创新能力,建设创新型国家,必须坚持以人为本,树立和落实科学发展观,坚定不移地实施人才强国战略,加快高素质、高水平科技人才队伍建设,为建设创新型国家提供人才保障。

在刚刚结束的党的十七次代表大会上,胡锦涛总书记要求我们进一步营造鼓励创新的环境,培养造就世界一流科学家和科技领军人才,使创新智慧竞相迸发、创新人才大量涌现。奖励为科技进步与创新作出贡献的科技工作者,是营造创新环境的重要手段,也是全社会的光荣责任。我们要不断改革和完善国家科技奖励制度,进一步鼓励和规范社会力量设立科技奖励,使之成为促进科技进步和创新的有力杠杆,形成全社会激励和推动自主创新的强大合力和良好氛围。

由何善衡、梁铨珩、何添、利国伟四位爱国金融实业家捐款创立的何梁何利基金,一直得到中央人民政府和香港特区政府的大力支持。基金始终坚持科学管理、制度透明、运作规范和向国际标准靠拢的理念,秉持公平、公正、公开的评选原则,截至目前已评选了 14 届,共有 747 人获奖,成为在国内外颇具权威的社会科技奖励基金,受到了祖国内地和香港科技界、教育界及社会各界的高度赞誉。

近两年来,何梁何利基金围绕我国建设创新型国家战略目标的要求,勇于创新,坚持改革,