



国家科学技术奖励 获奖项目公报

(二零零一年)

中华人民共和国科学技术部
国家科学技术奖励工作办公室
二零零一年十二月三十一日

根据《国家科学技术奖励条例》的规定，国家科学技术奖励评审委员会进行严格评审，结果由国家科学技术奖励委员会审议，科技部审核，经国务院批准，报请国家主席江泽民签署，授予黄昆、王选 2001 年度国家最高科学技术奖；批准 2001 年度国家自然科学奖授奖项目二等奖 18 项；国家技术发明奖授奖项目二等奖 14 项（其中通用项目 12 项，专用项目 2 项）；国家科学技术进步奖授奖项目一等奖 17 项（其中通用项目 11 项，专用项目 6 项）；国家科学技术进步奖授奖项目二等奖 174 项（其中通用项目 126 项，专用项目 48 项）；授予中华人民共和国国际科学技术合作奖获奖人 6 人。



目 录

国家最高科学技术奖获奖人简介

黄昆	4
王选	8

国家自然科学奖

国家自然科学奖获奖项目目录	15
国家自然科学奖二等奖获奖项目简介	17

国家技术发明奖

国家技术发明奖获奖项目目录	37
国家技术发明奖二等奖获奖项目简介	39

国家科学技术进步奖

国家科学技术进步奖获奖项目目录	53
国家科学技术进步奖一等奖获奖项目简介	76

国际科学技术合作奖获奖人简介

米夏埃尔·佩策特（德国）	90
杨又迪（美国）	94
比约昂·艾利克·维尔汉姆·诺登斯强姆（瑞典）	98
毛焕宇（加拿大）	102
黑田吉益（日本）	106
若则·依斯拉尔·瓦加斯（巴西）	110



CONTENTS

A Brief Introduction to the Winners of the State Preeminent Science and Technology Award

Huang Kun

Wang Xuan

The State Natural Science Award

A Content of the State Natural Science Award

A Brief Introduction to the Winners of
the State Natural Science Award of Second Prize

The State Technological Invention Award

A Content of the State Technological Invention Award

A Brief Introduction to the Winners of
the State Technological Invention Award of Second Prize

The State Scientific and Technological Progress Award

A Content of the State Scientific and Technological
Progress Award

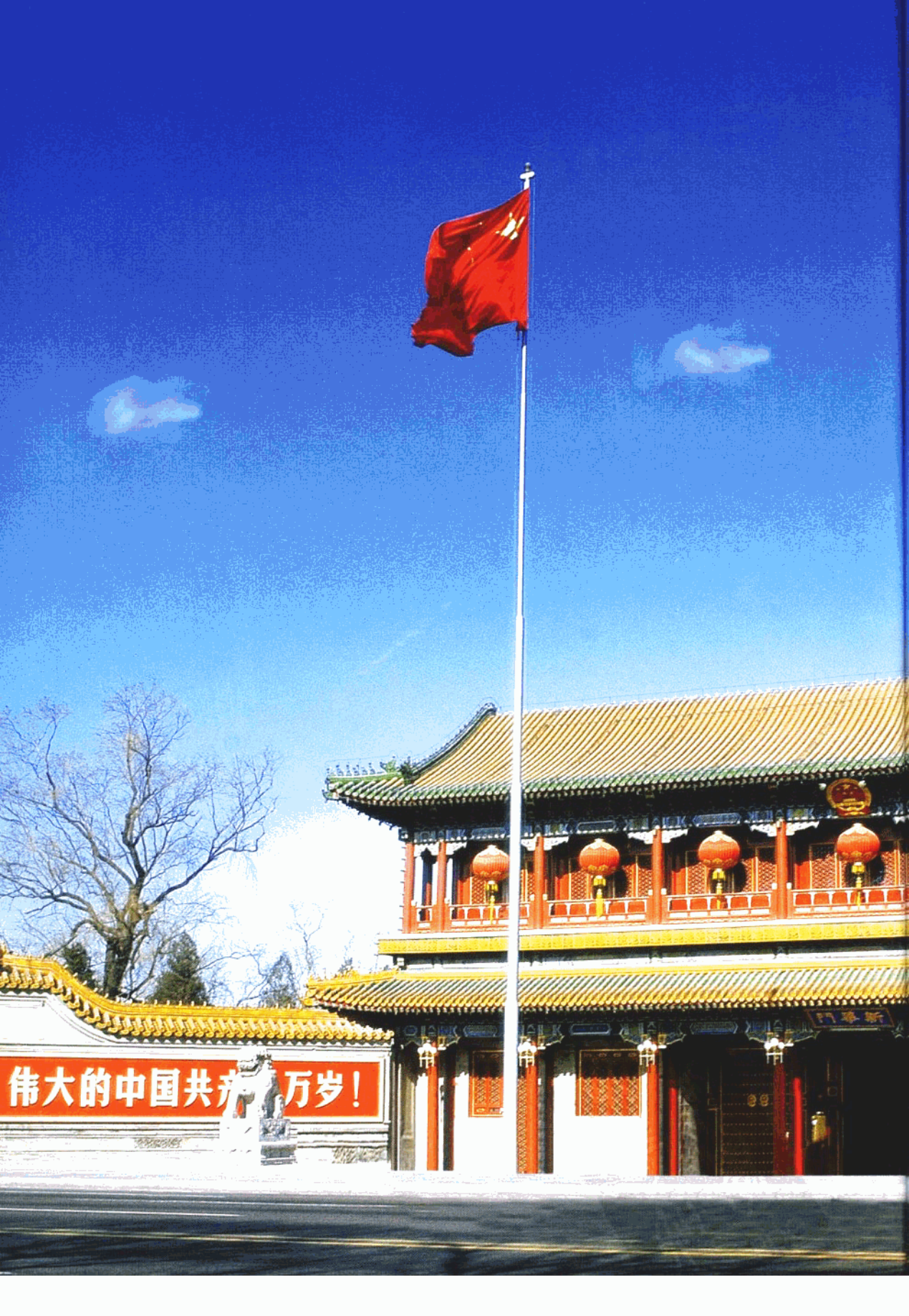
A Brief Introduction to the Winners of the State Scientific
and Technological Progress Award of First Prize

A Brief Introduction to the Winners of the International Scientific and Technological Cooperation Award of the People's Republic of China

Micheal Petzet	(German Scientist)
Charles Y. Yang	(America Scientist)
Bjon Erik Wilhelm Nordenstrom	(Swedish Scientist)
Huanyu Mao	(Canadian Scientist)
Kuroda Yoshimasu	(Japanese Scientist)
Jose Israel Vargas	(Brazilian Scientist)

国家最高科学技术奖获奖人 简介





伟大的中国共产党万岁！

根据《国家科学技术奖励条例》的规定，国家科学技术奖励评审委员会进行严格评审，结果由国家科学技术奖励委员会审议，科技部审核，经国务院批准，报请国家主席江泽民签署，授予黄昆、王选2001年度国家最高科学技术奖。





黄 昆

中国科学院
半导体研究所

黄昆，男，1919年9月出生于北京，1941年毕业于燕京大学物理系。1945年赴英国留学，1948年获英国布里斯托 (Bristol) 大学哲学博士学位，1949-1951年在英国利物浦大学理论物理系任博士后研究员，1951-1977年在北京大学物理系任教授，1977-1983年任中国科学院半导体研究所所长，1983年至今，任名誉所长。他先后被选为中国科学院学部委员 (院士) (1955年)，瑞典皇家科学院外籍院士 (1980年)，第三世界科学院院士 (1985年)。1987-1991年曾任中国物理学会理事长。

黄昆院士是世界著名的物理学家，他对固体物理学作出了许多开拓性的重大贡献。是我国固体物理学和半导体物理学的奠基人之一。他从理论上预言了与晶格中杂质有关的X光漫散射，以后被称为“黄散射”。这个理论在六十年代获实验证实，“黄散射”已发展成为一种能直接研究固体中微观缺陷的有效手段。他的多声子跃迁理论，以“黄一里斯因子”而著称于世。他提出关于描述晶体中光学位移、宏观电场与电极化三者关系的“黄方程”和由此引伸的电磁波与晶格振动的耦合，即后来称为极化元的重要概念。他与M. Born合著的《晶格动力学理论》一书，是一部有世界影响的经典性科学专著。他的理论对信息产业（特别是光电子产业）具有重要的现实指导意义，产生着越来越深远的影响。

半个世纪以来，他不仅对固体物理学做出了重要的贡献。同时，还对高等学校中普通物理、固体物理和半导体物理的教学做出了十分重要的贡献。

黄昆院士热爱祖国，热爱科技事业。近年来，他与合作者对半导体超晶格的电子态和声子模开展了系统的富有成效的研究。为我国科技事业作出重要贡献。



Huang Kun

Kun Huang, male, born in September 1919 in Beijing, graduated at the department of physics of Yenching University in 1941. He went to England to study at the University

of Bristol from 1945, in 1948 obtained his doctorate degree, then from 1949-1951 did post-doctorate research work at the University of Liverpool. From 1951-1977 he was a professor at the department of physics of Peking University. From 1977-1983 he was the Director of the Institute of Semiconductors, Chinese Academy of Sciences; since 1983 he has been the Honorary Director of the Institute.

Kun Huang was elected a member of the Departments of the Chinese Academy of Sciences in 1955, a foreign member of the Royal Swedish Academy of Sciences in 1980, and a member of the Third World Academy of Sciences in 1985. He served as Chairman of the Chinese Physics Society from 1987-1991.

Academician Kun Huang is an internationally widely known physicist who has made many important pioneering contributions in solid state physics.

Academician Kun Huang theoretically predicted, in the late forties, diffuse X-ray scattering associated with the impurities in crystal lattices, which was experimentally confirmed in the sixties, and later named "Huang Scattering", and has already developed into an effective and direct method for studying micro-defects in solids.

His multiphonon transition theory through its "Huang-Rhys factor" has become widely known. With a pair of equations, proposed by him, relating optical displacement, macroscopic electric field and electric polarization (Huang Equations) he was led to discover for the first time coupled vibratory modes between optical vibration and the electromagnetic field which has come to be called 'polariton'.

He is widely known for his collaboration with Max Born in writing the monograph "Dynamical Theory of Crystal Lattices". His theoretical work therein is of practical and important significance with its guiding role to the information industry (especially to the opto-electronics industry), exerting ever further and deeper influence.

For the last half century, he has been not only making important contributions to solid state physics, but at the same time making great contributions to the teaching of general physics, solid state physics and semiconductor physics in colleges and universities.

Academician Kun Huang deeply loves his motherland and is ardently devoted to scientific work. In recent years he has achieved remarkable success with his colleagues, in collaborative research, in the electronic states and phonon modes in semiconductor superlattices, making great contributions to our nation's scientific cause.



王 选

北京大学计算机科学技术研究所

王选，男，1937年2月出生于上海，1958年毕业于北京大学数学力学系。后一直从事计算机领域的教育和研究工作。自1975年开始，他组织并进行了汉字激光照排和电子出版系统的研制工作。1984年后被聘任为北京大学教授、计算机科学技术研究所所长。1992、1994年先后被选为中国科学院、中国工程院院士。1995年任北大方正技术研究院院长，方正控股有限公司董事局主席。

王选院士是著名的计算机应用专家，主要致力于文字、图形、图象的计算机处理研究。1975年开始主持我国计算机汉字激光照排系统和以后的电子出版系统的研究开发，跨越当时日本的光机式二代机和欧美的阴极射线管式三代机阶段，开创性地研制当时国外尚无商品的第四代激光照排系

统，针对汉字印刷的特点和难点，发明了高分辨率字形的高倍率信息压缩技术和高速复原方法，率先设计出相应的专用芯片，在世界上首次使用控制信息（参数）描述笔划特性的方法，并取得欧洲和中国的相应发明专利。这些成果的产业化和应用，取消了我国沿用上百年的铅字印刷，推动了我国报业和印刷出版业的发展。同时，他又相继提出并领导研制了大屏幕中文报纸编排系统、彩色中文激光照排系统、远程传版技术和新闻采编流程管理系统等。这些成果达到国际先进水平，在国内外得到迅速的推广应用，使中国报业技术和应用水平处于世界最前列。

八十年代初，王选院士便开始致力于研究成果的商品化、产业化工作，成功地闯出一条产学研紧密结合的市场化道路。使得汉字激光照排技术占领国内报业 99% 和书刊（黑白）出版业 90% 的市场，以及 80% 的海外华文报业市场，创造了巨大的经济和社会效益。

王选院士热爱祖国，热爱科技事业、积极培养人才。多年来，他始终站在当代科学技术前沿，积极推进技术成果的产业化和促进现代生产力的发展，为我国的科技进步做出重要贡献。



Wang Xuan

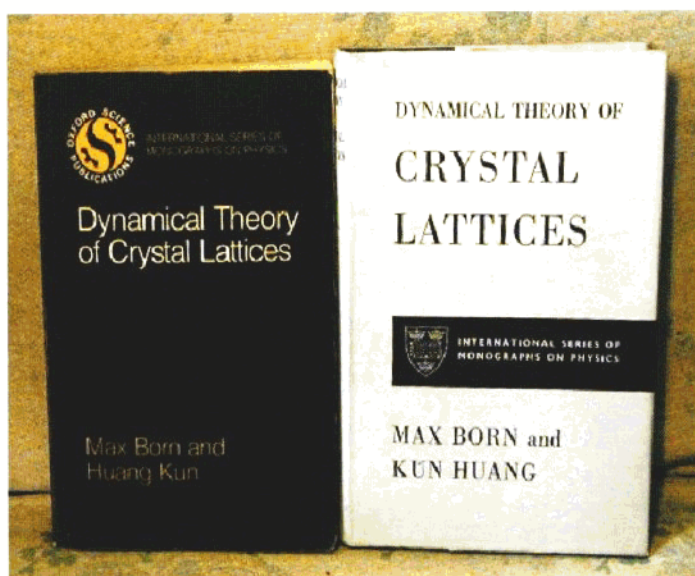
Wang Xuan, male, born in Feb 1937 in ShangHai, graduated from the department of mathematics and mechanics of Peking University in 1958. Since then he devoted himself to the education and research in the field of computer science. Starting from 1975, he was in charge of the research and development of the Chinese language laser typesetting system and electronic publishing system. Since 1984, He has been a professor of Peking University, the director of the Institute of Computer Science and Technology of Peking University. In 1992 and 1994, he was enlisted as academician of Chinese Academy of Science and academician of Chinese Academy of Engineering respectively. In 1995, he became the director of Founder R&D center and chairman of the board of Founder (Holding) Ltd.

Professor Wang Xuan is a famous computer application specialist. He is mainly involved in research of computer processing of words, graphics and images. Since 1975, he has been taken charge of research and development of laser typesetting system of Chinese language and electronic publishing system, which omitted the second-generation optical designation in Japan and the third-generation CRT designation. Prof. Wang invented the fourth-generation laser typesetting system that hasn't come into the market in other counties. In face of the characteristic and difficulty of the pub-

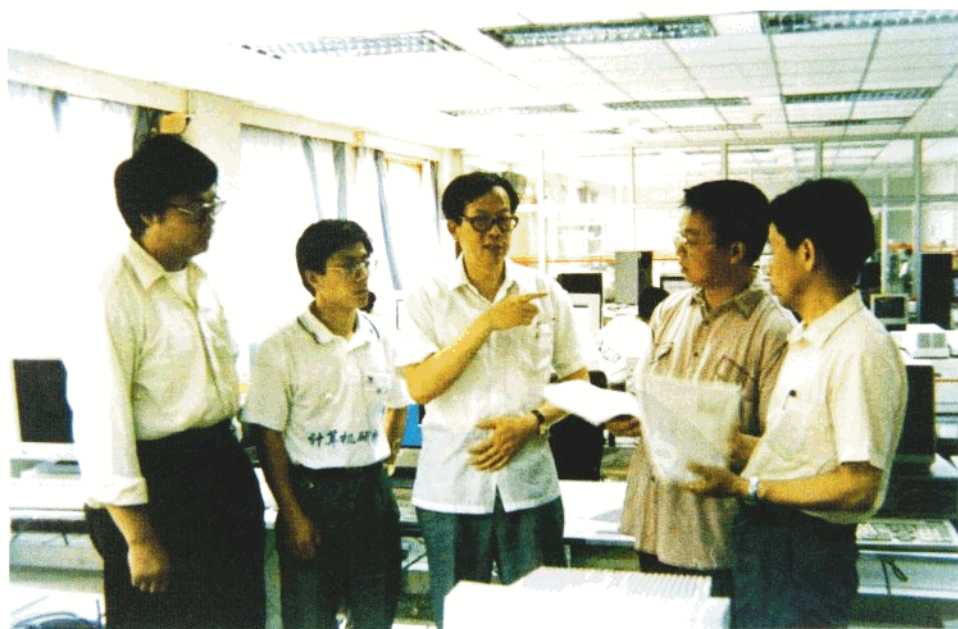
lishing of Chinese characters, he invented the high efficiency compression and restoration method for Chinese characters. He also took the lead in the designing of relevant special chip for such system. In the world, he took the lead in using control information (parameters) to describe the characteristics of breadth. This invention got the European patent and Chinese patents as well. The application and industrialization of such invention ended lead-type publishing method in China which has a history over hundreds of years and promoted the development of industry of newspaper and printing and publishing of China. Meanwhile, Prof. Wang also made research and production of Chinese language newspaper editing and publishing system using large computer terminals, Chinese language laser typesetting system for color printing, the technology of tele-transmission of publishing pages, managing system of news collecting and editing process, etc. Such production ranked in the leading place around the world. And also the rapid expansion and application of those technologies within and out of the country have made the technological and application level of Chinese newspaper industry the most advanced all over the world.

In the early 1980s, Prof. Wang started the process of industrialization of his research fruits. He has also exploited a marketing approach with tight connection of production, education and research. Currently, Chinese language laser typesetting technology has occupied 99% domestic newspaper industry market, 90% book (white and black) publishing domestic market and 80% overseas Chinese language newspaper industry market as well, which produced great economic and social benefits.

Prof. Wang Xuan shows great passion to our motherland. He also devotes himself to technological research and human resource cultivation. In these years, he keeps in the leading place of modern science and technology, effectively makes promotion of industrialization of advanced technology and development of modern productivity, and makes great contribution to the improvement of science and technology in China.



黄昆院士的部分著作



王选院士与科研人员讨论工作

国家自然科学奖获奖项目 目录及简介

