

欧阳平凯

报告人简介：

欧阳平凯，湖南湘潭人，南京工业大学教授、博士生导师。现为中国工程院院士。欧阳平凯院士 1981 年毕业于清华大学化工系并获硕士学位；加拿大滑铁卢大学“荣誉工学博士学位”。



欧阳平凯院士是我国最早介入生物化工领域的学科带头人，作为中国生物制造和工业生物技术的先行者和倡导者，长期研究生物技术应用于化工、材料、精细化工品的先进工程制造。他和他所领导的团队在生物催化工程、新型生物化工装备以及低劣生物质生产材料、能源和化学品，减少环境污染方面作出了系列率先的卓有成效的工作，其中应用生物催化剂的反应与分离耦合方法，在手性化合物的生物制造以及高能磷酸化合物生产应用中效果显著，分别获国家科技进步一等奖和国家技术发明二等奖。他在工业生物技术领域的工作受到国内外的广泛关注，出任中国生物产业大会主席，荣获何梁何利科技进步奖、杜邦科技创新奖、首届赵永镐创新成就奖等。

目前担任中国生物工程学会名誉理事长、江苏省产业技术研究院名誉院长、国家生化工程技术研究中心主任等职，曾担任南京工业大学校长、江苏省科协主席等职。

PingKai OuYang

Profile of the Author:

Pingkai Ouyang, from Xiangtan, Hunan, is professor and doctoral supervisor of Nanjing University of Technology. Now he is an academician of the Chinese Academy of Engineering. Academician Ouyang graduated from the Department of Chemical Engineering of Tsinghua University in 1981 with a master's degree. He is Ph.D. in Honours Engineering from the University of Waterloo, Canada.

Academician Ouyang is the earliest interdisciplinary person involved in biochemical industry in China. As a pioneer and advocate of bio-manufacturing and industrial biotechnology in China, he has long been studying the application of

biotechnology in advanced engineering of chemical, materials and fine chemicals. He and his team have made a series of pioneering and effective efforts in biocatalytic engineering, new biochemical equipment, and inferior biomass production materials, energy and chemicals to reduce environmental pollution, including the application of biocatalyst reaction and separation coupling method. It has achieved remarkable results in the bio-manufacturing of chiral compounds and the production of high-energy phosphorous compounds. It has won the first prize of National Science and Technology Progress Award and the second prize of National Technology Invention. His work in the field of industrial biotechnology has received extensive attention at home and abroad. He has served as the chairman of the China Bio-industry Conference, and won the He Liang He Li Technology Progress Award, DuPont Science and Technology Innovation Award, and the first Zhao Yongzhen Innovation Achievement Award.

Academician Ouyang is currently the honorary chairman of the China Society of Bioengineering, the honorary president of the Jiangsu Provincial Institute of Industrial Technology, and the director of the National Biochemical Engineering Technology Research Center. He has served as the president of Nanjing University of Technology and the chairman of the Jiangsu Association of Science and Technology.

生物制造新进展

摘要：传统制造模式对人类生存环境带来挑战。生物制造是社会可持续发展的重要途径。生物技术的进步推动了生物制造的发展，尤其是合成生物学为生物制造注入了新的活力。中国生物制造面临的问题是资源从哪里来？我国低劣生物质资源：分散式分布、种类繁多、总量丰富。如何利用中国富有的非粮生物质？

生物制造在能源与材料制造中已经取得显著成绩。如何解决原料来源，加强产品衍生化对中国生物制造的可持续发展至关重要。高效利用低劣生物质产甲烷兼具节能、减排、资源化的三重战略意义。2016年底中国发布了《生物质能发展十三五规划》，指出到2020年燃料乙醇产量达400万吨。木质素的高值化利用为纤维素酒精带来了新的机遇。此外，生物基材料在未来十年内大规模应用会成为2025中国制造的亮点。

New Progress in Biomanufacturing

Abstract: Traditional manufacturing models pose challenges to the human environment. Bio-manufacturing is an important way for sustainable social development. Advances in biotechnology have driven the development of bio-manufacturing. Synthetic biology has injected new vitality into bio-manufacturing. The problem facing China's bio-manufacturing is where does the resource come from? China's inferior biomass resources are scattered, diverse, and abundant. How to use China's rich non-food biomass?

Biomanufacturing has achieved remarkable results in energy and materials manufacturing. How to solve the source of raw materials and strengthen product derivatization are crucial to the sustainable development of bio-manufacturing in China. Efficient use of low-quality biomass to produce methane has the triple strategic significance of energy conservation, emission reduction and resource utilization. At the end of 2016, China issued the 13th Five-Year Plan for Biomass Energy Development, pointing out that by 2020, fuel ethanol production will reach 4 million tons. The high value of lignin utilization brings new opportunities for cellulose alcohol. In addition, the large-scale application of bio-based materials in the next decade will become the highlight of 2025 in China.