Proceedings of the International Conference of the High-speed Railway Engineering Design, Construction and Maintenance Technology

高速铁路
线路工程设计理论、施工及养护技术
国际学术会议论文集

主编　王平　李成辉

Edited by
Ping WANG & Chenghui LI

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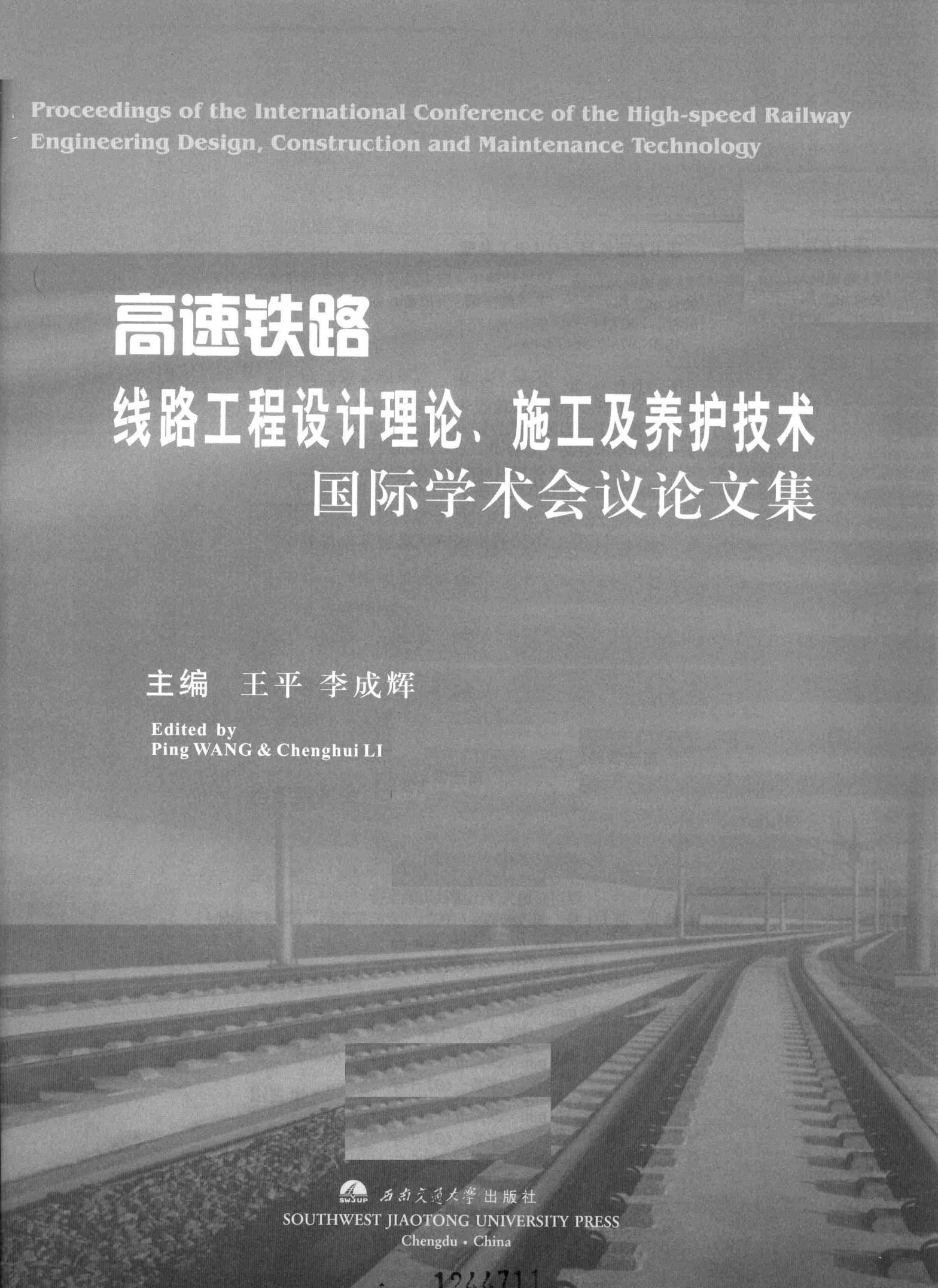

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前　言

西南交通大学的前身山海关铁路官学堂诞生于 1896 年。学校当时仅设有土木工程系，这是我国高校成立最早的土木工程系，西南交大也由此成为中国近代土木工程高等教育的一个重要发祥地。至 1949 年新中国成立前，土木工程系就已设置了铁道工程等专业。可以说，成长了一个多世纪的西南交通大学，见证了民族的独立、自强和国家的发展进步。西南交大校友们为中国科技、经济、教育事业的发展特别是为中国和谐铁路建设所作出的卓越贡献，已随着四通八达的万里铁道线而铭刻于神州大地，成为了世界交通运输伟大变革中一支十分重要的推动力量。

我国目前正处于高速铁路大发展的黄金时期，根据我国《中长期铁路网规划》，到 2020 年我国铁路将建成“四纵四横”快速客运通道及三个区域城际快速客运系统等 12 000 公里的高速铁路运输网。中国铁路的发展，特别是现在京沪高速铁路和大规模客运专线的建设，离不开铁道领域的专家学者在科技和理论等方面的鼎力支持。

我国客运专线高速度、高密度、长距离的运营特点必然要求铁路线路有结构连续、平顺、稳定、耐久和少维修的性能。随着我国近年来高速铁路、客运专线的大力发展，高速铁路轨道设计理论、施工及养护技术得到越来越多的关注。无砟轨道在国外的广泛应用及在国内的初步应用经验均表示出明显的优越性，取得了良好的技术、经济效益；大坡道、小半径曲线、竖曲线等因素要求高速铁路选线应有更合理可行的方案；列车的高速运营及轨道工程的高稳定性对路基工程提出了更高的要求，路基沉降控制问题更加突出。因此，高速铁路、客运专线的建设与铁道专业各方向科研水平的提高密切相关。

本次会议旨在为国内外从事铁路线路设计、施工及养护维修的专家、学者提供一个高水平的学术交流平台，加强海内外铁道工程领域专家、学者的学术交流，促进国内铁道学科的发展，更好地为我国高速铁路、客运专线的建设提供技术储备。会议主题主要包括轨道工程、线路工程及路基工程等。

本论文集中共收录全文 52 篇，摘要 34 篇（摘要的全文被收入西南交通大学学报中文版和英文版），所有文章均通过专家审核，会务组诚挚地感谢所有投稿作者的积极参与。同时，还要感谢本次会议的学术委员会成员、中国铁道学会、西南交通大学科技处、中铁二院、中铁二十三局、北京交通大学、中铁四院、中铁宝桥集团、中铁轨道集团、中铁二局等单位的支持。

最后，感谢西南交通大学土木工程学院道路与铁道工程系的全体教职工及会议组织委员会各位成员的辛勤工作。

大会执行主席

西南交通大学 教授、博士生导师

王　平

2009 年 11 月

Preface

Southwest Jiaotong University (SWJTU) was founded at Shanhaiguan in 1896, It is one of the oldest universities in China, majoring in civil engineering. Southwest Jiaotong University has thus become an important birthplace of china's modern higher education in civil engineering. Before the establishment of P.R of china in 1949, the railway engineering and other professions had been set up in the civil engineering department. It can be said that, after more than a century, Southwest Jiaotong University witnessed the national independence and the national development progress. Faithful to China, Southwest Jiaotong University has made outstanding contributions to science, technology, the economy, educational development, especially in the regards of railway construction and has become a very important driving force in the world of transportation

In China high-speed railway is currently in the golden age of great development. According to our country's " Medium and long-term Railway network Plan", by 2020, China railway will be built "four vertical and four horizontal" lines and three regional inter-city transportation channel. At that time a 12000 km high-speed railway transportation network will be formed. The development of china's railway, especially the construction of the Beijing-Shanghai high-speed railway and other passenger dedicated line, is inseparable from railway experts' full support in the areas of science theory and technology.

The high-speed, high density, long-distance operating characteristics of the Chinese passenger dedicated lines were required for a structured continuous, smooth, stable, durable and low maintenance performance of the railway lines. Along with the vigorous development of the passenger dedicated line , more and more attention has been paid to the railway track design theory, construction and maintenance technology. The wide use of ballastless track in foreign countries and the initial application experience in China indicated a clear superiority and has achieved good technical and economic efficiency .Big ramp, small radius curves, vertical curves and other factors required high-speed rail line selection should be proposed more reasonable and feasible. High-speed train operation and high stability of the track project put forward higher requirements to subgrade project, settlement control become more prominent. Therefore, the high-speed railway construction is closely related to the improvement of railway scientific research.

The 2009 conference intends to provide a high level platform of academic exchange for experts and scholars who are engaged in the design, construction and maintenance of the railway lines both domestic and overseas, enhancing exchange of engineering experts in the field of railway and promoting the development of the domestic railway disciplines that will be better for the construction of passenger dedicated lines. The theme of the meeting includes rail projects, the line works, subgrade works and so on.

The proceedings at the 2009 conference include full text 52, abstract 34 (The full text of which abstract is included in the Chinese and English version of Journal of Southwest Jiaotong University).All articles are reviewed by experts. Here, we express our deepest gratitude to those who worked for the composition, compilation and publication of the conference proceeding.

Professor Ping WANG
Executive Chairman, Organizing Committee
Southwest Jiaotong University
P.R.of China
2009.11

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