

Achieve the Innovation of Ultra-high-Speed Ground Transportation
Make the Dream of Building Cross-sea Bridges and Tunnels on Both Sides of the
Taiwan Straits Come True

---On the Engineering Construction of Transporting System in Ultra-high-Speed Vacuum Maglev Train

Jun Sun

Institute of Tunneling and Underground Engineering, Tongji University

Group Two, Engineering Department of Science and Technology, Chinese Academy of Sciences,

Zizhong Liu, Jiapeng Liu

Beijing Jiuzhou Artery Tunnel Technology Co., Ltd.

The increase in transportation speed signifies the process and improvement of technology in transportation construction. Regarding the construction of high-speed railways, as the operational speed accelerates, the wind-driven resistance it receives in condensed atmospheric layer, various resistances caused by the friction between wheels and uneven rail surfaces, and the noises that they bring will increase exponentially. Therefore, the problems of operation economy and security involved become important factors that influence the further speed increases of ground transportation. This study presents a plan of building subsea vacuum tunnels and submerged long bridges employing vacuum pipes. The speed is expected to be more than 1200km/h, almost 4 times as fast as it is now, after the treatment of seal processing to the pipes and railway carriages, and the adoption of “Transporting System in Ultra-high-Speed Vacuum Maglev Train” utilizing magnetic levitation technology. The suggestions in this article are: first of all, build “submarine vacuum tour bus” for the purpose of developing the ecotourism of the port cities and the neighbouring islands; then, carry out a series of necessary technological experiments during the test running, for the purpose of improvement and completion. It is probable to promote the ultra-high-speed transportation system in strait passages in China, and realize the dream of building a mighty country in bridge and tunnel constructions when considerable knowledge through the practical experiences is obtained.

Keyword: Ultra-high-speed train; Vacuum and sealing technology; Magnetic levitation technology; Underwater vacuum pipe, Subsea tunnel and submerged long bridges