

Construction Technology of Chinese Woven Timber Arch Bridges

Yan Yang, PhD; **Baochun Chen**, Prof.; **Shozo Nakamura**, PhD; College of Civil Engineering, Fuzhou University, China

Introduction

According to the structural types of the existing timber arch bridges, they can be classified into three main forms, that is, rib arch, truss arch, woven arch.¹⁻³ The woven arch is a unique structure and is only built in China, so it is also called Chinese woven timber arch.³ According to their present situation, location and structural details, Chinese timber arch bridges can be further divided into two types: one is the nonextant ancient Bianhe rainbow bridge and the other is the extant Min-Zhe timber arch bridge.^{4,5} The historical records show that the first ancient Bianhe rainbow bridge was built in China between 1032 and 1033.⁴ The Chinese timber arch bridges were widespread in the 11th and 12th centuries over the Bian and Fen rivers, but none of them survived, and no details of their design and construction technologies have been

(a)



(b)



Fig. 1: Two branches of Chinese timber arch bridges: (a) Bianhe rainbow bridge; (b) Min-Zhe timber arch bridge