

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Empirical investigation on the transport network of the Yangtze River delta metropolis circle¹ SI-JUN PAN, CHANG-GUI GU, YU-MEI JIANG, DA-REN HE, Yangzhou University — We empirically studied the combined transport network, which includes inter-urban bus network, railway network, river and sea ship network and airplane network of the Yangtze River delta metropolis circle from the viewpoint of complex network. The cities are defined as the nodes. Two nodes are connected by an edge when they are served by a bus, a train, a ship or an airplane directly. The total passenger number on the edge is defined as the edge weight. We propose a new statistical property addressed as “incompleteness,” which is defined as the edge difference of the networks from the complete graph. The results indicate that the combined one is very near to complete. Another new property is addressed as “convenience.” The convenience of an edge is defined as its weight. The total convenience of a road between two cities can be calculated by a rule of edge convenience similar to the rule of resistances in series and parallel connection. The total convenience of a network is defined as the average of all the edge convenience. The results show that the combined network has the largest convenience.

¹supported by Chinese National Natural Science Foundation, No. 10635040 and 70671089

Da-Ren He
Yangzhou University

Date submitted: 06 Nov 2006

Electronic form version 1.4