

## **THE OPTIMUM DESIGN FOR DEEP PIT SUPPORTING STRUCTURE**

Liu Hongjun Dept. Of Construction & Environment, Ocean University of Qingdao, China

The optimum design for deep pit supporting is conducted based on optimization theory. The thesis is begun with acquiring parameters of the soil body's shear strength—the basic step of deep pit supporting design. Quantities of indoor test data are optimized on the principle of modern mathematical method, so as to improve accuracy of test data and provide accurate and reliable parameters for supporting structure design. Steps of optimization and principles of pit supporting design are introduced in the thesis. That is, preferring schemes firstly and then optimizing methods. With regard to the former, various supporting schemes are analogically analyzed according to the proprietor's demands, and then the economical, safe and reliable support method is determined. As to the later, detail structures of one support scheme are optimized to formulate the optimum function of its engineering cost; main parameters are optimized according to optimization method to further reduce engineering cost. Some common schemes of deep pit supporting are analyzed and discussed in the thesis. Key parameters in supporting design are optimized and the optimum scheme is obtained ultimately. Dynamic design of information construction in pit support project is also discussed in the thesis. The key point of information construction is the acquirement of feed back information. Only if the pit project is monitored regularly and obtained information on displacement and stress is fed back to the designer without delay, the design, and will be more economical, safe and reliable.