



HISTORY, STATE-OF-THE-ARTS AND FUTURE TREND OF RESEARCH ON SHIP MANOEUVRABILITY AND CONTROLLABILITY

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ABSTRACT

From the author's over 30 years experience of engaging in research on ship manoeuvrability and controllability, he will review brief history, state-of-the-arts and future trend of the research on ship manoeuvrability and controllability. Manoeuvrability has less history than other area such as resistance and propulsion. Due to some historical and mainly economical reasons, the research and development on this field was influenced as well as other fields. Nowadays, the environmental influence is imperative factor to be considered. Moreover, manoeuvrability itself is special field different from other fields such as resistance and propulsion, seakeeping or structural problems, because we cannot discuss it without taking account of the performance of human operator or controller. Ship handling simulator is one of the important tools for this purpose. For mariners training and education, ship handling simulator is now widely used in the world. However, the key issue of the ship handling simulator is not on the computer graphic technique nor bridge equipment installation. The most important and difficult technology is to provide suitable mathematical model for each subject ship. Safety issue in congested waterways is another important factor to be considered related to the ship manoeuvrability. In port and harbour area, safety issue is much more serious, because of the nature of degraded ship manoeuvrability in low ship speed and geo-graphical restriction such as shallow or confined waterways. These problems will be summarised and discussed with some latest research results.