2018/06/20-21 Hydro-Testing Forum

new partner introduction: HUST

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Outline

1. HUST
2. Towing tank in HUST

1. HUST

1. HUST

- located in Wuhan, on the central banks of the Yangtze River
- one main campus and a satellite medical campus
- established in 1952 (Huazhong Institute of Technology)

- one of top ten universities in China
- “The epitome of the development of China’s higher education”
- “211 Project” and “985 Project” university

1. HUST




- covers an area of over 460 hectares, 72% greenery coverage, “University in the Forest”
- around 3,000 full-time faculty members
- more than 55,000 full-time students
  - 32,000 undergraduates
  - 17,000 master candidates
  - 6,000 doctoral candidates

1. HUST

- 42 academic schools and departmen
- 12 major disciplines
  - 94 undergraduate programs
  - 225 master programs
  - 184 PhD programs
  - 39 post-doctoral research centers
- 7 national key first-level disciplines
- 15 national key sub-disciplines

- over 100 labs on the 460 hectares forest-like campus
- more than 10 state-level research platforms

1. HUST—school of naval architecture and ocean engineering

- established in 1959 (department of shipbuilding)
- 2 disciplines

  Design and manufacture of ships and marine structures

  marine engineering
- 40 full-time faculty members
- around 850 full-time students

  600 undergraduates

  200 master candidates

  50 doctoral candidates

2. Towing tank in HUST

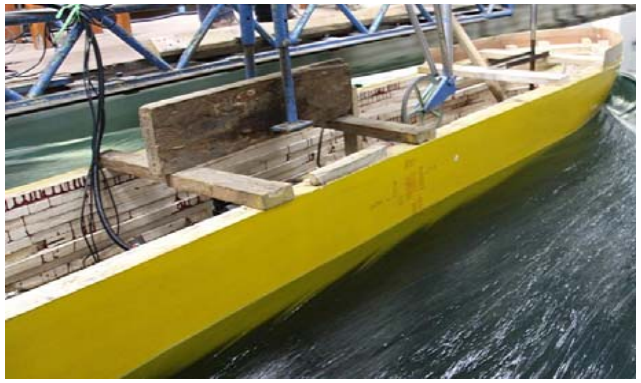
2. Towing tank

- built in 1977
- a full member of the ITTC since 1987
- 3,600 m^2 experimental area

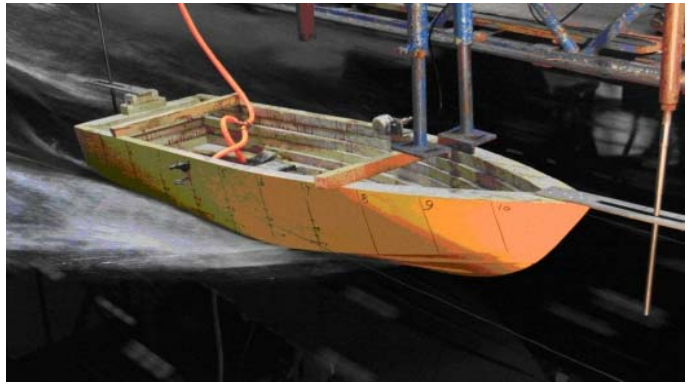
  Length: 175m width: 6m depth: 4m
- towing carriage max. speed 8m/s
- max regular wave height 0.4m, max wavelength 12m

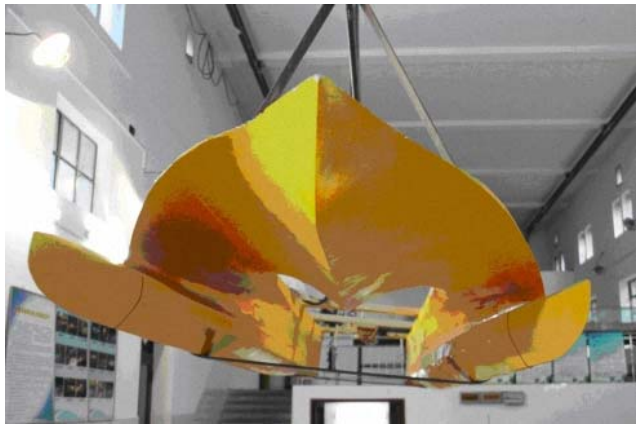
2. Towing tank—routine test

resistance test



micro-bubble drag reduction test





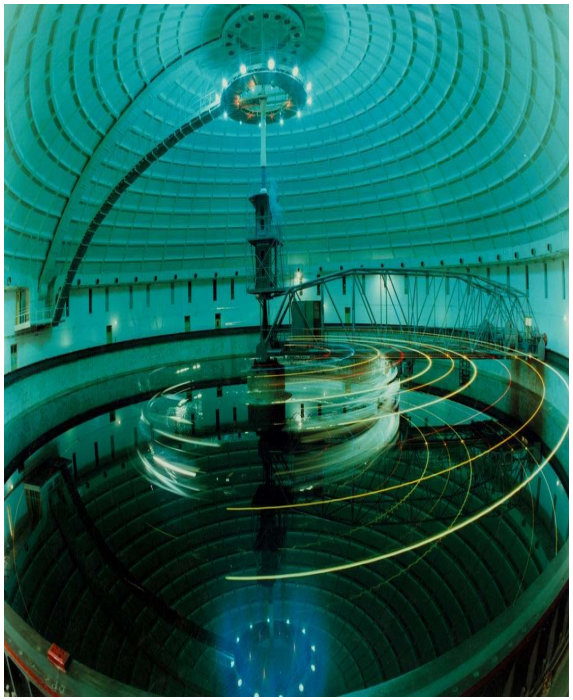
wave piercing catamaran

passenger vessel with three propellers

2. Towing tank—new experimental facility

captive model test

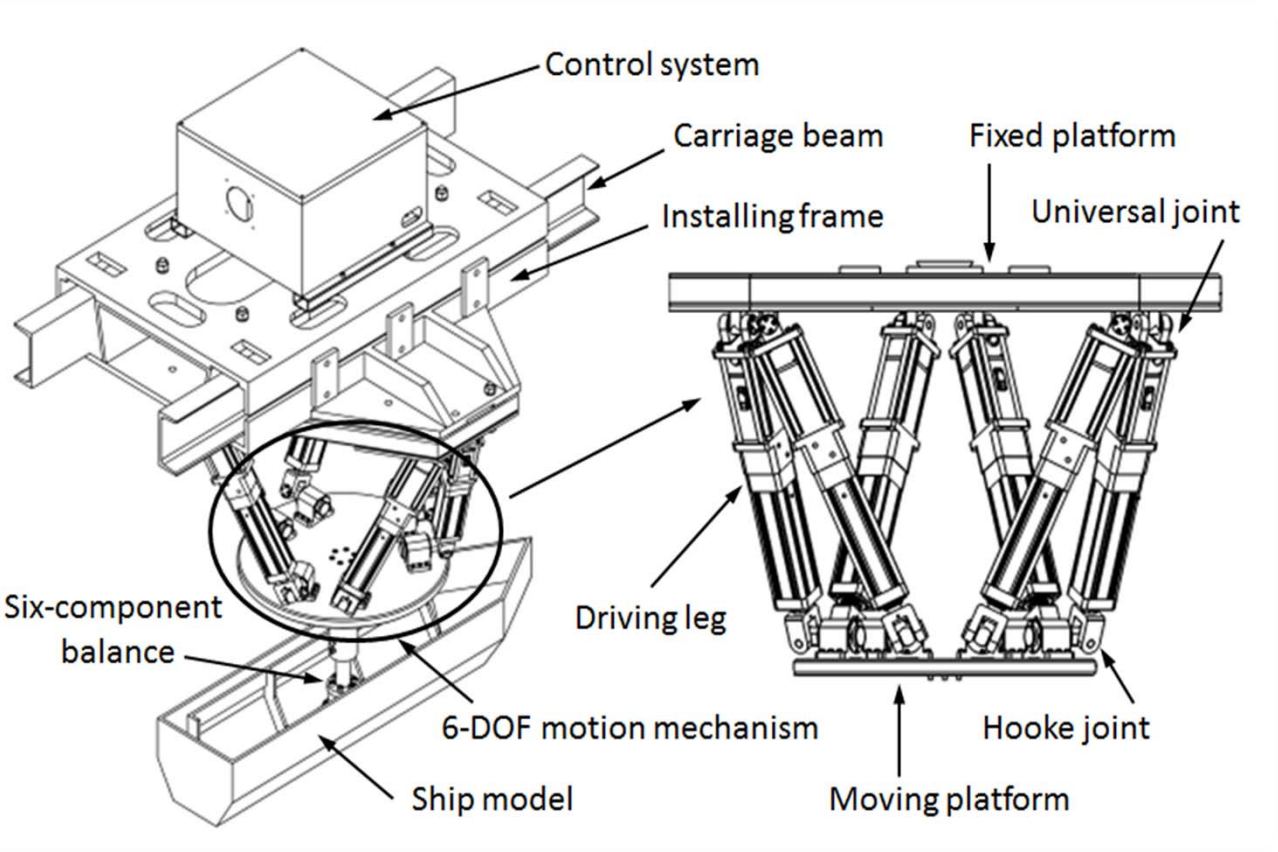
rotating arm
(Davidson basin, 1944)

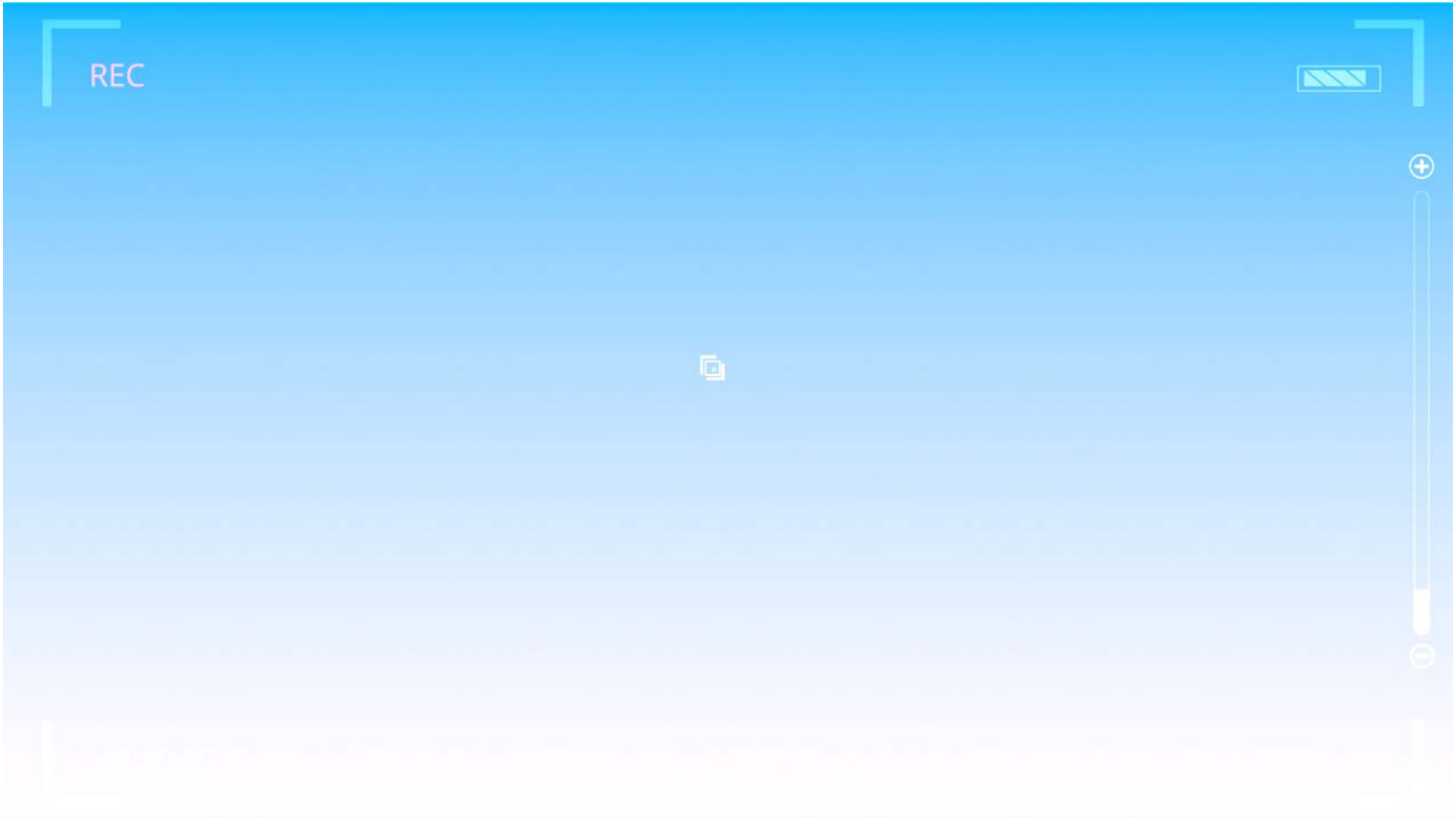


planar motion mechanism
(Goodman, 1952)

six-DOF motion mechanism
(Gough,1957; Stewart, 1965)

2. Towing tank—new experimental facility

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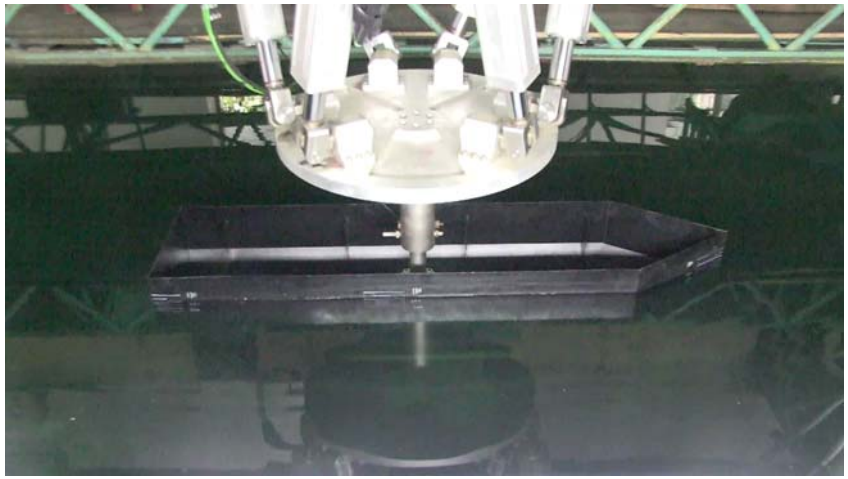
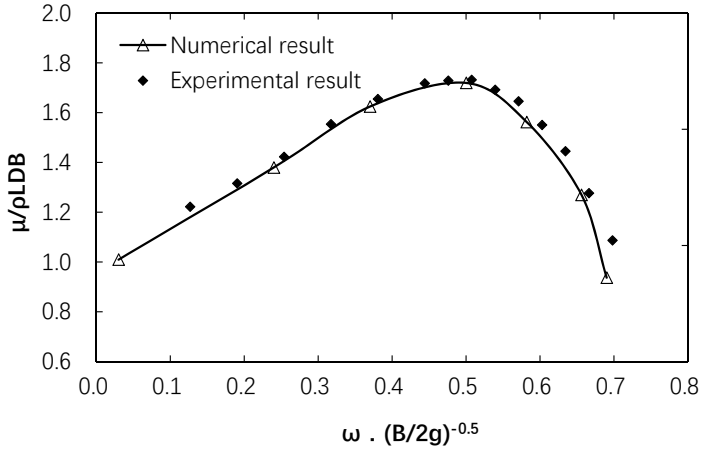


2. Towing tank—new experimental facility

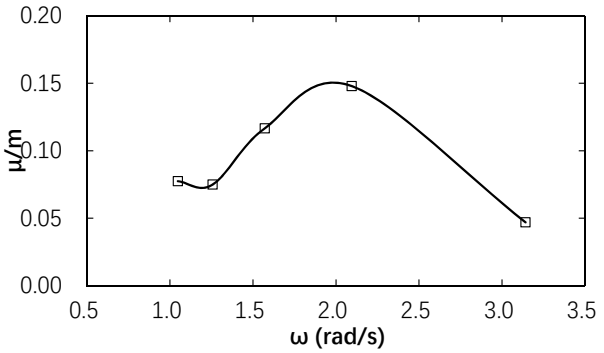
- rectangular cylinder model

sway added mass coefficient

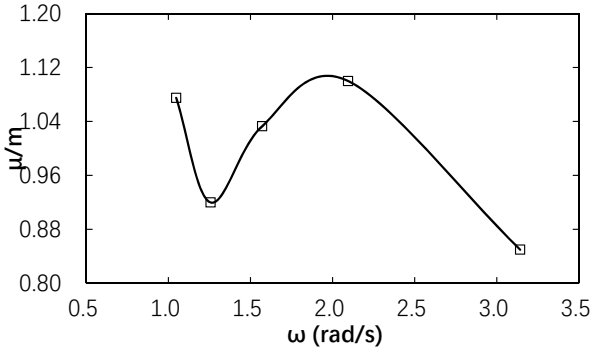


- ship model

surge added mass coefficient

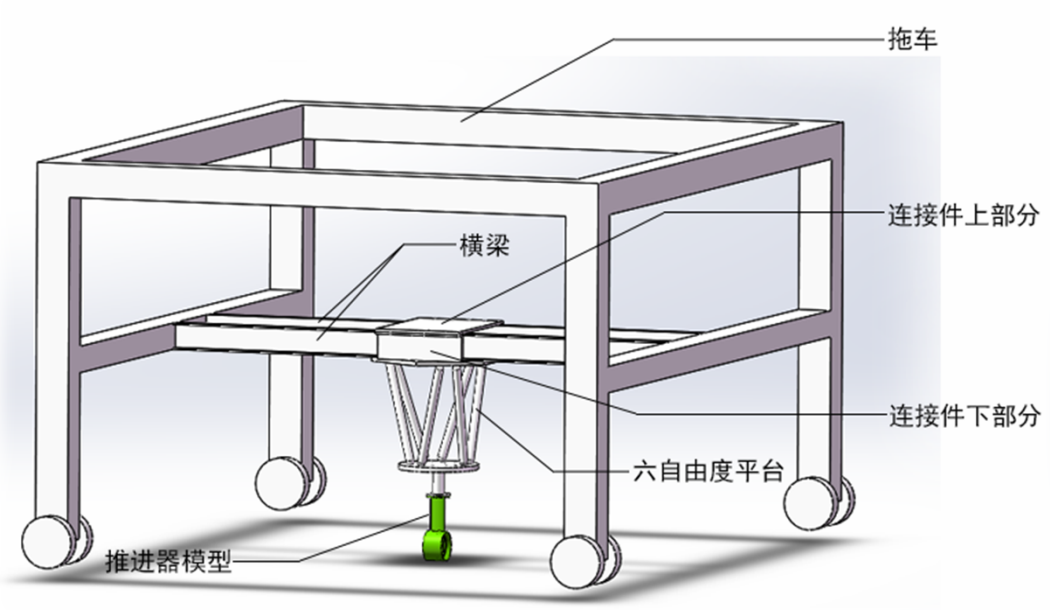


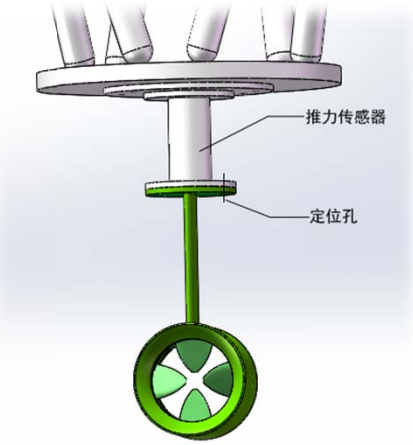
sway added mass coefficient



2. Towing tank—new experimental facility

- rim-driven thruster and its testing apparatus





Thank you !