



IMAREST Benelux branch presents **Programme 2020**

Practical information for technical lectures (unless otherwise specified):

Venue: TUDelft 3ME, Mekelweg 2 Delft

Coffee/drinks: 18.30

Starting time of lecture: 19.00

Closure: 21.30

For more information, updates of the programme and membership visit the website:

<https://www.imarest.org/local-communities/europe/benelux>

Tuesday 18th of February 2020

Technical lecture

Speakers: Jeroen Dierickx (Gent University)

Topic: Sustainable development within UGENT

The marine sector is currently undergoing increased regulations from IMO such as Tier III for SO_x and NO_x emissions. Recently IMO's member states agreed to reduce CO₂ emissions with 50% in 2050 compared to 2008. As an answer to these upcoming regulations new technologies are being developed. In this presentation a set of criteria will be determined to assess new technologies and it will be reasoned why methanol as a marine fuel and the internal combustion engine pop us as promising technologies. Further, Work Package 5 of the EU Flagship project LeanShips, that had the aim to demonstrate methanol as a marine fuel, will be presented. The approach and the results of the project will be elaborated.

Thursday 2nd of April 2020

Technical lecture

Speakers: Paul Bracke and Shuang Li (Bakker Sliedrecht)

Topic: Integrity of (dual fuel) electric power plants for (large) DP-vessels

The safest way of operating a DP-vessel equipped with a High Voltage diesel electric power plant is a mode were all bus ties are opened. However this way of operation it not very fuel efficient, bad for emissions, high running hours, fouling the engines etc. The market asks for a power plant with a reduced number of generators so in a mode with closed bus tie(s). It will be explained what the effects are for the requirements for the DP power plant. Furthermore it will be shown that a power plant in closed ring mode is the most flexible and efficient. However a closed bus or closed ring configuration effects the integrity of the power plant and requires additional protection on system level. It will be demonstrated how these protections are operating and how they are tested. Results are shown from a 40 MW 11kV power plant for a DP-vessel equipped with 4 Dual Fuel (diesel and LNG) engines which added additional phenomena due to differences in dynamic behaviour of the engines.

Tuesday 2nd of June 2020

Technical lecture

Speaker: Jan-Rients Sinnema and Peter van den Bergh (van Halteren Special Products)

Topic: Chilled Water Units and new coolants

Cooling is “mission critical” nowadays on board of naval vessels, such as frigates and submarines. Same as for cruise ships it provides cooling for the men and women on board, but naval vessels also have extensive direct cooling of the mission vital weapon electronics. The Heating Ventilation and Air Conditioning (HVAC) system will be explained in general and especially the Chilled Water Unit, the heart of a HVAC system, that provides a flow of chilled water all over the ship. Where previous submarines relied on "direct expansion" systems where the coolant was directly distributed the Walrus class submarines were the first in the RNLN to have a chiller. Recently during midlife conversion these units were replaced by state-of-the-art-units. The refrigerant, the cooling gas in the Chilled Water Unit, nowadays has sophisticated control in order to become more environmental friendly. Recent developments will be described including the presenter's views into the future.

Thursday 17th of September 2020

Technical lecture

Speakers: Lode Huijgens (TUD)

Topic: Bringing the engine room to the towing tank

In the strive to reduce emissions, ship propulsion systems will change considerably in the years to come. The trusted diesel engine will likely become supplemented and even replaced by fuel cells and spark ignition engines. However, there still is a great deal of uncertainty regarding the performance of such technologies in a marine environment. For example, the transient behaviour of these new systems may in some cases be far inferior to that of diesel engines, potentially reducing manoeuvrability and sea keeping to dangerous levels. Considering this, the section of marine engineering of TU Delft is investigating Hardware In the Loop (HIL) in the towing tank, linking up a realtime simulation of engine room equipment with a model scale propeller and environment. As such, dynamic experiments with an unprecedented level of detail can be conducted, shedding light on the complex interaction between ship, propulsion system and environment.

Friday 13th of November 2020

Annual General Meeting & Mini-symposium

Topic: Data driven maintenance: how to make sense of the data deluge

Details and location to be announced.

