

Evening Technical Meeting:

DEFENCE AND AUTONOMOUS SYSTEMS

Report on SUT Perth Branch Evening Technical Meeting
Wednesday 11th August 2021

By Scott McMaster, Perth Branch Committee Member

The August 2021 SUT technical evening at the Parmelia Hilton was opened by SUT Perth Branch Secretary, Nick McNaughton and chaired by SUT Committee Member, Scott McMaster.

The event was kindly sponsored by Blue Zone Group.

Anti-Submarine Warfare operations utilising autonomous Wave Gliders for detection, classification and localisation was presented by Norman Ballard (Engineering Manager) from Bluezone Group. Norman's technical presentation covered the development of Anti-Submarine Warfare (ASW) capability using Australian-developed sonar and track processing systems installed in unmanned surface vehicles. The development is being performed as part of a contract awarded by the Defence Innovation Hub. Norman presented the autonomous system being developed including the propulsion, energy harvesting, sonar processing and track processing systems. It highlighted the strengths of the system including its versatility and its fully autonomous persistent surveillance capability. The presentation concluded by presenting the results of recent sea trials which indicated that the system is highly successful from a range capability and station keeping perspective.

Underwater Technologies Assisting Robotic Autonomous System was presented by Scott Elson (Chief Technology Officer) of L3 Harris MSA. Robotic autonomous systems promise a force multiplying effect to the scale of surveillance that can be provided by manned platforms alone. However to achieve this affect there are a number of key challenges that will need to be addressed. Scott presented technologies being developed by L3Harris in Australia and abroad to address challenges associated with the use Robotic Autonomous System for surveillance. These technologies included communications between RAS agents and remote C2 systems, application of aluminum-water (Al-H₂O) energy modules and trusted autonomy for surface and underwater vehicles.

Hull External Pressure Test Project was presented by Hamid Yeganeh (Project Engineer) from JFD Global. The Department of Defence, through the Defence Science and Technology Group (DSTG), awarded JFD Australia with a contract to build and pressure test three large ring-stiffened cylinders to validate their analytical and numerical methods for modelling of pressure hull collapse. Hamid discussed the various phases of the testing programme including the design, construction, measurement, monitoring, testing to collapse, and disposal of the three cylinders. He concluded his presentation by summarising some of the key challenges faced during the initial design and fabrication of the cylinders as well as an update on the status of the testing programme.

After each presentation the online Question & Answer programme SLIDO was used. This was hugely successful, gaining considerable audience involvement in both quantity and quality throughout the Q&A sessions. This was equally matched by each presenters extensive knowledge of their subjects and flawless ability to respond to the questions.

The presentations and whole evening were well received by a total of 92 registered attendees.

Thank you to the SUT members, new members and guests for their attendance during the evening, especially to the three presenters that volunteered their time to speak at the event. I would like to conclude by again thanking our ETM sponsor, Blue Zone Group, for their valuable financial support without which these evenings would not be possible.

