

### Agenda, UDRC Themed Meeting on Signal Processing in the Underwater Environment

As part of the UDRC phase III, a themed meeting on Signal Processing in the Underwater Environment will be held on Thursday March 25th. This will be a virtual event. This event is intended for academic researchers, industrial partners and Dstl staff to learn about and discuss current trends in Signal Processing in the Underwater Environment. The program will consist of a series of talks from academia and defence industry.

**Timings:** Thursday March 25<sup>th</sup> 2021, Start 9:00am until 4:45pm

**Location:** (to register, use this link <https://edinburgh.onlinesurveys.ac.uk/attendance-underwater-signal-processing-udrc-themed-meetin> (more info [janet.forbes@ed.ac.uk](mailto:janet.forbes@ed.ac.uk))

**Organizer:** Prof. Jason Ralph, University of Liverpool ([jfralph@liverpool.ac.uk](mailto:jfralph@liverpool.ac.uk))

| Timing               | Topic  | Name   |
|----------------------|--|--|
| <b>9:00 – 10:20</b>  | <b>Session 1 Underwater Signal Processing</b>  | <b>Chair TBC</b>   |
| 9:00 – 9:05          | Introductions and welcome  | Jason Ralph/Simon Maskell, University of Liverpool           |
| 9:05 – 9:30          | Signal processing challenges in the Underwater Environment   | Andrew Flinn, MoD  |
| 9:30 – 9:55          |  | TBC, Centre for Maritime Research and Experimentation (CMRE) |
| 9:55 – 10:20         | Modelling of acoustic wave propagation in realistic ocean environment  | Sourav Sahoo, National Oceanography Centre (NOC)             |
| 10:20 – 10:35        | Break  |  |
| <b>10:35 – 12:15</b> | <b>Session 2 Tracking and Monitoring</b>   | <b>Chair TBC</b>   |
| 10:35 – 11:00        | Tracking in a cluttered environment and shallow water  | Catherine Smith/Garry Wood, Dstl                             |
| 11:00 – 11:25        | Poisson multi-Bernoulli mixture filters for multi-target tracking using sonars   | Angel Garcia-Fernandez, University of Liverpool              |
| 11:25 – 11:50        | Passive acoustics – Source identification and tracking   | Philippe Blondel/Alan Hunter, Bath University                |
| 11:50 – 12:15        | Acoustic detection networks  | Jeff Neasham, Newcastle University                           |
| 12:15 – 13:00        | Lunch Break  |  |
| <b>13:00 – 14:15</b> | <b>Session 3 Industry Concerns</b>   | <b>Chair Matthew Palmer</b>                                  |
| 13:00 -13:25         | Magic Carpets: Overcoming the challenges of live sonar trials onboard an uncrewed vessel   | Tina Haggett/Lisa Symes, Atlas Elektronik                    |
| 13:25 – 13:50        | Data to Decision' – Delivering Exploitable Capability from Advanced Processing in Complex Sonar Systems  | Andy Marlor, Thales  |
| 13:50 – 14:15        | TBC  | TBC, BAE Systems   |
| 14:15 – 14:30        | Break  |  |
| <b>14:30 – 16:35</b> | <b>Session 4 Autonomy and Situational Awareness</b>  | <b>Chair Simon Maskell</b>                                   |
| 14:30 – 14:55        | Underwater robot perception and autonomy: From image enhancement to autonomous navigation / Underwater mapping and navigation using high resolution acoustic imaging | Sen Wang/Yvan Petillot, Heriot-Watt University               |
| 14:55 – 15:20        | Acoustic communications  | Paul Mitchell, University of York                            |
| 15:20 – 15:45        | Graph signal processing  | Stephan Weiss, University of Strathclyde                     |
| 15:45 – 16:10        | A multi-frame resolution enhancement framework for multi-beam sonar systems  | James Hopgood, University of Edinburgh                       |
| 16:10 – 16:35        | Emerging undersea signal processing challenges for future Navy systems   | Mike Vaccaro, Office of Naval Research (ONR)                 |
| 16:35 – 16:45        | Closing remarks  | Jason Ralph/Simon Maskell, University of Liverpool           |
| 16:45                | Close  |  |

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