



# 海岸和近海工程国家重点实验室 学术讲堂

题目：**Decommissioning of Offshore Flexible Flowlines to Torpedo Anchor – A Concept Study**

报告人：**Prof. Yuxia HU**

时间：**2023年10月18日 15:00-16:30**

地点：**海动A301会议室 &  
腾讯会议房间号：775 8184 2394**



## 内容简介：

Prof. Yuxia Hu obtained her PhD degree in 1991 in costal and offshore engineering at Dalian University of Technology (DUT). After graduation, she has been working in China, Japan and Australia. After she joined the Geomechanics group (later Centre for Offshore Foundation Systems – COFS) at the University of Western Australia (UWA) in 1992, she started to develop a practical approach to analyse soil-foundation interactions involving large deformations of soils - LDFE/RITSS (Large Deformation FE/ Remeshing and Interpolation Technique with Small Strain model). The LDFE/RITSS method has been implemented in different commercial software and applied to many offshore soil-structure interaction problems successfully, such as pipeline, spudcan, anchors, skirted foundation, penetrometers and foundation for renewable energy offshore. Prof. Hu has published more than 100 journal and conference papers on the improvement of offshore foundation designs, and corresponding design guidelines. Her contribution to the geotechnical community has been recognised by 2005 IACMAG Junior/Senior Paper Award, 2006 BGA Best Paper Award and 2018 ICE Telford Premium Award.

Abstract: Subsea flexible flowlines are flexible pipeline systems to transport high pressure offshore oil and gas from production to storage facilities. Over the years, the flexible flowlines have been developed towards light, strong, durable and reliable, which make the flexible flowlines are un-destructible. However, over the next thirty years, there will be more than 1500 km of flexible flowlines decommissioned in Australia. The design of the flexible flowlines has made them difficult to be dismantled and disposed. This project is to conduct a concept investigation on recycling the decommissioned flowlines as torpedo anchors to support offshore floating facilities for energy and renewable energy explorations. Torpedo anchors are installed with minimum installation facilities by free-fall in water due to gravity. Their impact velocity at the seabed is the key to penetrate the anchor to reach enough soil depth to develop enough anchor holding capacity. Based on the materials and dimensions of flexible flowlines, model novel torpedo anchors are designed. Their hydraulic characteristics during free-fall in water are tested in the O-Tube facility at the University of Western Australia (UWA) to study their free-fall trajectories and terminal velocity in water (i.e. impact velocity on seabed). Their geotechnical characteristics, such as penetration depth and holding capacity, are tested in the National Geotechnical Centrifuge Facility (NGCF) at UWA. The preliminary testing results show promises to recycle the decommissioned flexible flowlines for torpedo anchors.