

# The first joint workshop on Biology-inspired robotics and Robotics-inspired Biology (BIR-RIB)

The BIR-RIB workshop is jointly organized by two HFSP (Human Frontier Science Program)-funded projects:

- ***Biology-inspired robotics:*** A dung beetle's life “how miniature creatures perform extraordinary feats with limited resources” (<http://dlife.sdu.dk/>)
- ***Robotics-inspired biology:*** Decoding flexibility of motor control by studying amphibious locomotion (<http://www.riec.tohoku.ac.jp/riecnews/special/21/index.html> )



# Discussion

- Has the field made significant progress since SAB was launched in the 90s? What were the greatest successes? What challenges remain the same?
- Environment as a key component for behavioral switching,
  - Land - Water
  - Ground – Ball
  - Anything else, internal models?
- Interaction between CPGs and sensory feedback, when and how?
- Sensory propagation and muscle stiffness, how?
- Are we still on DC motors or are the alternatives becoming better?

# Programme

9:00 Workshop start

9:00–9:15 Brief Introduction, announcements

## *Biology-inspired robotics:*

9:15–9:45 Locomotion and Navigation in dung beetles (Emily Baird)

9:45–10:15 Leg kinematics and labour division in dung beetles (Nienke Bijma)

10:15–10:45 Bio-inspired robotics: From dung beetles to Robots (Poramate Manoonpong & Jorgen C. Larsen)

## *Robotics-inspired biology:*

12:30–13:00 Engineering tools to study sensory motor control in lamprey (Paez Coy Laura Isabel & Jonathan Patrick Arreguit O'Neill)

13:00–13:30 Decoding Flexibility of Motor Control Underlying Amphibious Locomotion of Centipedes (Kotaro Yasui)

13:30–14:00 Locomotor flexibility of *Polypterus senegalus* (Keegan Lutek)

14:00–15:00 Discussion & Closing