

Biomimetics:

Learning from nature for innovation

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Centre for Biomimetics

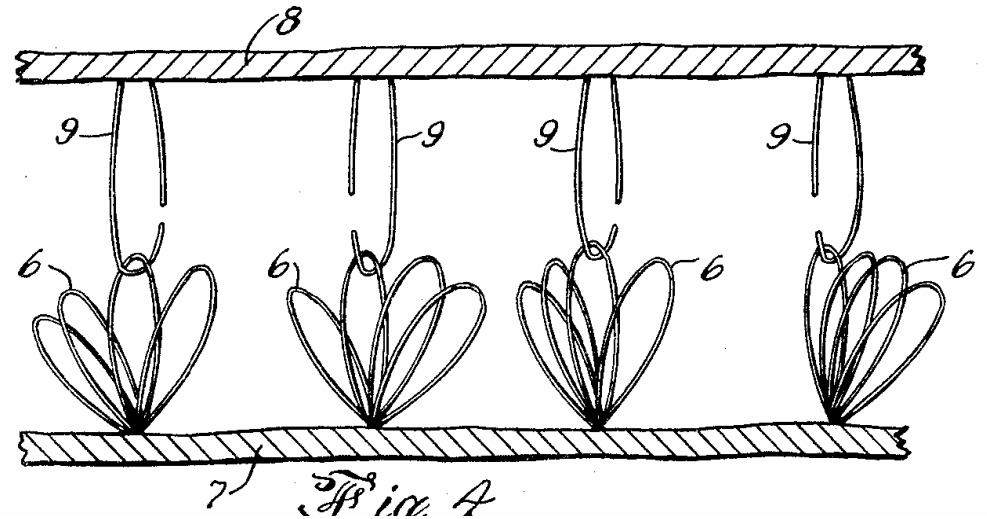
'The genius of man may make various inventions, encompassing with various instruments one and the same end; but it will never discover a more beautiful, a more economical, or a more direct one than nature's, since in her inventions nothing is wanting and nothing is superfluous'

Leonardo da Vinci

(translated by Richter, 1952).

The 'Velcro' story

or how to earn \$100m pa by walking your dog



Research at Reading

- Centre for Biomimetics
- Founded in 1992
- Team includes biologists and engineers
- Home to BIONIS:
 - www.biomimetics.org.uk

BIONIS (www.biomimetics.org.uk)

BIONIS

The Biomimetics Network for Industrial Sustainability

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Welcome to BIONIS

Biomimetics: Engineering learning from nature

Biomimetics is an enabling discipline which looks towards nature for ideas that may be adapted and adopted for solving problems:

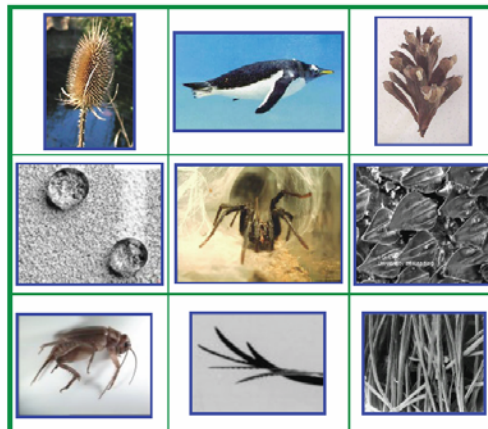
'Inspiration rather than imitation'

The burr on a dog's fur was the inspiration for Velcro!



Sources of inspiration

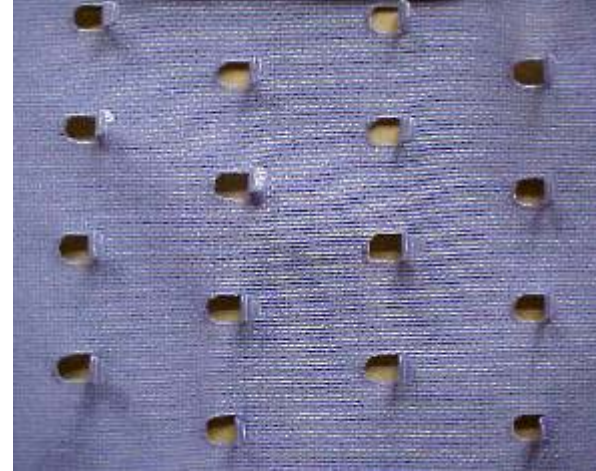
Click on a picture to learn more



Textiles from pine cones

- Breathable clothing for the desert
- Hot in the day, cold at night
- Reactive fabric needed

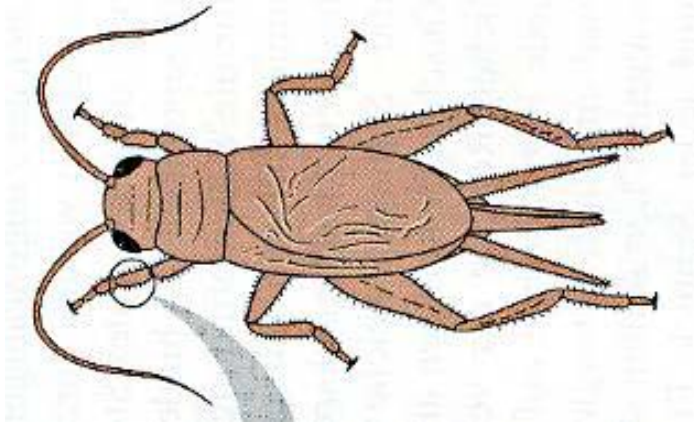




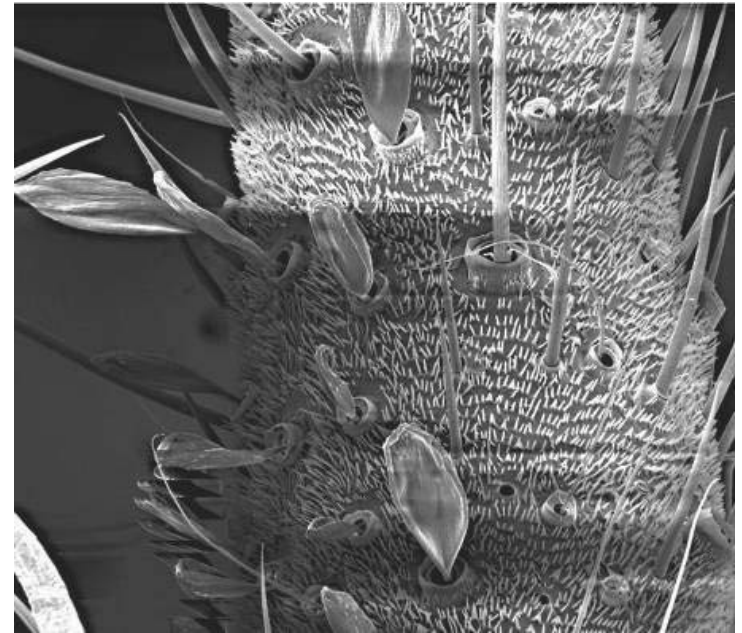
Sensors

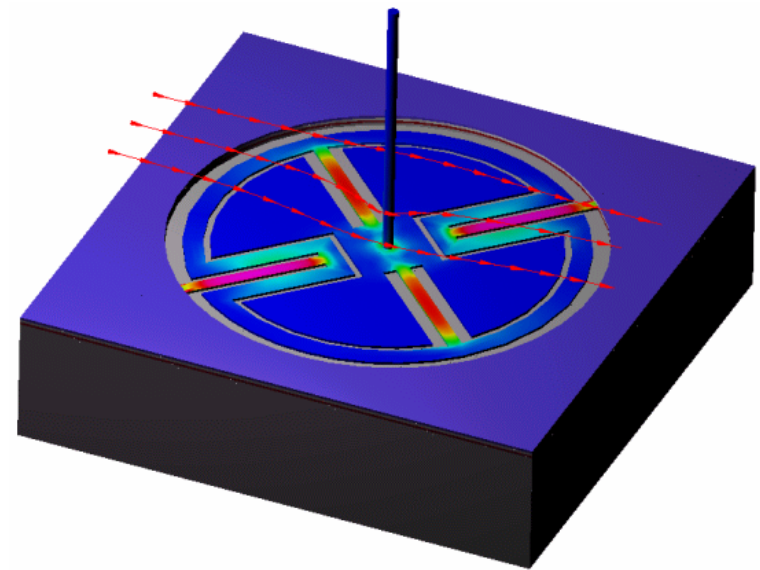
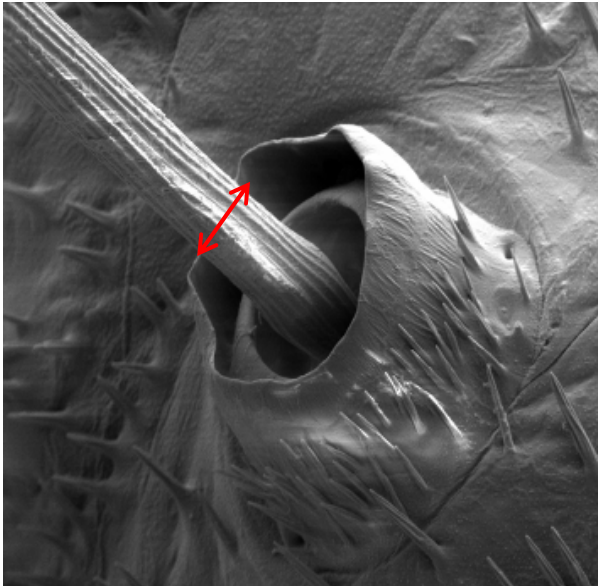
- Animals have good senses
- Can we copy their mechanisms???

Sensors: learning from crickets

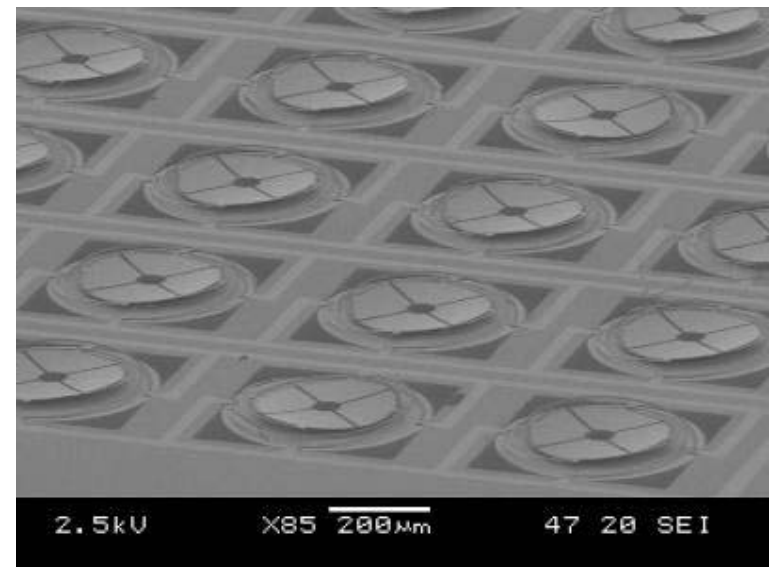


- Cerci- have c. 1000 sensors
- Gravity, airflow, chemicals





- MEMS hairs
- New airflow sensing technology



Conclusions

- Biomimetics can offer low energy, innovative solutions
- Research at Reading

Thanks for your attention

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