0235 Simple Noise Reduction

Structured porous trailing edges for quieter aerofoils without conventional add-on serrations

Brunel University of London

THE OPPORTUNITY

Turbulent eddies scatter into noise at aerofoil trailing edges, creating a prominent noise source in wind turbines, aviation and household products. SIMPLE offers a blade-integrated alternative to add-on serrations for manufacturers seeking lower-noise aerodynamic products.

1 TECHNOLOGY

Selective Interference Mono Porous Line trailing Edge (SIMPLE) forms structured through-hole arrays directly in an aerofoil trailing edge. Zigzag, serration-like and DRooTES-like patterns scatter turbulent eddies and create phase-delayed sound sources for destructive interference.

2 APPLICATIONS

- Wind-turbine blades and aerodynamic rotors
- UAV propellers and civil-aviation aerofoils
- HVAC, air-conditioning and household appliances

3 KEY BENEFITS

- Blade-integrated, non-add-on noise treatment
- Maintains the underlying aerofoil shape
- Supports targeted acoustic interference and frequency tuning

EVIDENCE & DEVELOPMENT STATUS

- Stage: laboratory proof of concept with a UK patent application filed.
- A1 SIMPLE Sawtooth Straight and B1 SIMPLE DRooTES Straight have results and are described as concept proven.
- A1 and B1 were positively demonstrated in Brunel's anechoic chamber; A2 and B2 testing remains in development.
- Next milestone: propeller testing for UAV and household-appliance applications, followed by industrial validation.

IP & OWNERSHIP

- Patent application: UK

PARTNERSHIP SOUGHT

- Licensing and product integration
- Collaborative aeroacoustic testing
- UAV, wind-energy or appliance validation partner

CONTACT Technology Transfer Team | Tech-Transfer@brunel.ac.uk | www.brunel.ac.uk

CONFIDENTIALITY: PUBLIC / NON-CONFIDENTIAL