Ice Protection for Electrically Powered Rotor Blade

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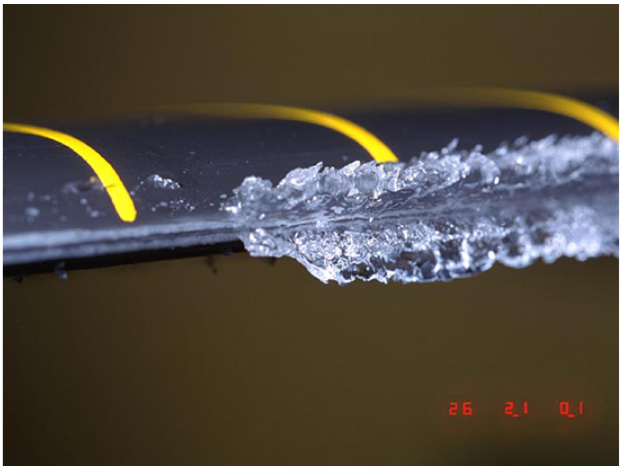

Ice accretion on blade

Technology Summary

The system is a novel means to prevent ice accretion on electrically powered rotors e g. helicopter drones. The technology uses motor thermal losses to heat the leading edge of the rotating blades. Unlike competitors, this model adds no additional weight to the vehicle and requires no additional power. Anti-icing sprays require numerous applications and forethought, while the innovation shown here is consistently active and replenishing.

Application & Market Utility

Electrothermal deicing is the only system currently certified by the Federal Aviation Administration to protect helicopter rotor blades. A major disadvantage of electrothermal deicing is that the electrical power required substantially exceeds the normal helicopter electrical system capacity, requiring a secondary electrical system. An unmanned aerial vehicle (UAV) does not have the power, space, or payload capability to carry these systems. A semi-passive, ultra-low power ice protection method for small UAVs is needed to allow these vehicles to fly under icing conditions.

Next Steps

Create working model/prototype. Patent pending. Seeking licensing and collaboration opportunities.

TECHNOLOGY READINESS LEVEL 1-3

Seeking

Licensing | Research

Keywords

- rotor blades (rotary wings)
- thermal de-icing
- unmanned aerial vehicle (UAV)
- drones
- centrifugal pumping

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