XROTOR Propeller and Windmill Design/Analysis Software — Summary
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XROTOR is an interactive program for the design and analysis of ducted and free-tip propellers and windmills. It employs the classical lifting-line representation of the propeller blade, allowing arbitrary profile lift and drag properties to be specified. Prandtl-Glauert compressibility corrections are used for the profile lift characteristics.

XROTOR calculates the induced velocities by numerically solving for the exact perturbation potential flowfield about the helical vortex sheet wake. This formulation is valid for all advance ratios and blade numbers, unlike classical theories which assume a small advance ratio and many blades. **XROTOR** also makes a first-order correction for the change in the pitch of the trailing sheets due to propeller's self-induction. These features are particularly important for highly-loaded propellers and windmills.

XROTOR includes a non-linear beam blade structural model. Rapid stress calculations at selected operating points simplify the overall aero/structural design of the blade. Static aeroelastic deflections can be readily incorporated into the blade's aerodynamic twist distribution.

Most of **XROTOR** 's functions execute nearly instantly. It currently runs on DEC, IRIS, HP-9000, and RS/6000 workstation platforms, and uses X-Windows screen graphics and PostScript hardcopy.

XROTOR is licensed for commercial use by the MIT Technology Licensing Office. Contact:

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XROTOR is freely available for academic teaching and research use. Contact:

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