CAMBRIDGE Enterprise

GreenSwirl software for calculating Green's function for swirling flow in an infinite duct

GreenSwirl is a MATLAB program for calculating Green's function for swirling flow in an infinite duct. The duct can have either hard walls or an acoustic lining, modeled using the Ingard-Myers boundary condition. The mean flow is a function of only radial position, can have shear and swirling components, and can be input as functions or data points. The programme calculates eigenmodes and the Green's function of the linearised Euler equations. The programme calculates these either numerically (Basic version) or numerically and analytically assuming the frequency is large (Advanced version). GreenSwirl has applications to the beamforming technique and can be used in the aeroacoustics industry to model aeroengine noise.

Further information can be found at the GreenSwirl website and in the publications below.

References

1. J.R. Mathews, N. Peake , The acoustic Green's function for swirling flow in a lined duct
2. James R. Mathews, Nigel Peake and Stefano Bianchi(27th of May 2016) , https://arc.aiaa.org/doi/abs/10.2514/6.2016-2922, American Institute of Aeronautics and Astronautics

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