FINAL TECHNICAL REPORT

PROJECT 4-26504 – NASA GRANT NAG-1-2281

Aeroelastic Modeling and Behavior of Lifting Surfaces Incorporating Aerodynamic and Structural Nonlinearities: Volterra Series and Indicial Function Approach

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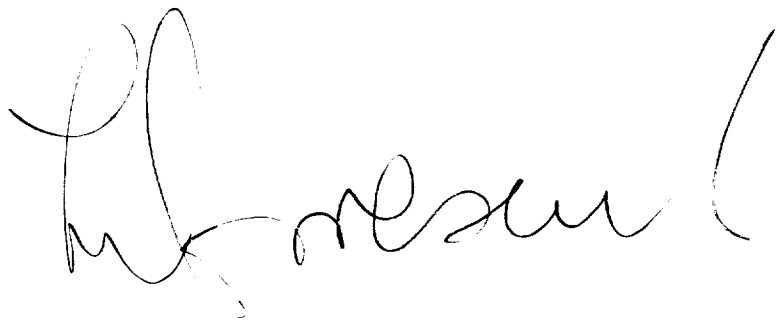
Within this NASA Grant (NAG-2281), the following points should be emphasized:

1) All the objectives stated in the proposal of the grant have been accomplished. Moreover, the activity within the project has addressed additional issues, of the linear and nonlinear aeroelasticity, not included in the objectives of the grant.
2) During the activities within the grant, we have been in a permanent contact with Dr. Walter A. Silva, the monitor of the NASA Project, to whom we have reported continuously our achievements.
3) As a result of the activities within the grant a number of papers:
    a. have been submitted for publication to the AIAA Journals, namely the *AIAA Journal* and the *Journal of Guidance, Control, and Dynamics*,
    b. have been presented at the specialized National Conferences and an International Congress, and have appeared in the proceedings of these Conferences.
4) A list of papers submitted for publication and presented at Conferences is appended herewith.
5) In all these papers, an acknowledgment to NASA Langley Research Center (NAG-1-2281) was included.



List of papers submitted for publication and presented at Conferences

P. MARZOCCA, L. LIBRESCU and W.A. SILVA, "Aerodynamic Indicial Functions and Their Use in Aeroelastic Formulation of Lifting Surfaces," AIAA paper 2000-WIP, *41st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, April 3-6, 2000, Atlanta, GA.

P. MARZOCCA, L. LIBRESCU and W.A. SILVA, "Aeroelastic Response of Swept Aircraft Wings in a Compressible Flow Field," AIAA Paper 2001-0714, *39th AIAA Aerospace Sciences Meeting*, January 8-11, 2001, Reno, NV.

P. MARZOCCA, L. LIBRESCU and W.A. SILVA, "Volterra Series Approach for Nonlinear Aeroelastic Response of 2-D Lifting Surfaces," AIAA Paper 2001-1459, *42nd AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, April 16-19, 2001, Seattle, WA.

P. MARZOCCA, L. LIBRESCU and W.A. SILVA, "Unified Formulation of the Aeroelasticity of Swept Lifting Surfaces," submitted for publication in *AIAA Journal.*

P. MARZOCCA, L. LIBRESCU and W.A. SILVA, "Aeroelastic Response of 2-D Nonlinear Lifting Surfaces by Functional Series Technique," submitted for publication in *AIAA Journal.*

P. MARZOCCA, L. LIBRESCU and W.A. SILVA, "About the Control of the Flutter and Post-Flutter Instability of a Hypersonic Cross-Sectional Wing," submitted for publication in *Journal of Guidance, Control, and Dynamics.*

P. MARZOCCA, L. LIBRESCU and W.A. SILVA, "Nonlinear Stability and Response of Lifting Surfaces Via Volterra Series," *Proceeding of the 20th ICTAM - IUTAM - 2000*, August 27-September 2, Chicago, IL.