



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



HANAA ALY



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

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HANAA ALY



AIRFOIL MORPHING CONTROL AT LOW REYNOLDS NUMBER

By

Yusuf Thaer Fadel Yahia Elbadry

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTERS OF SCIENCE
in
Aerospace Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

Airfoil Morphing Control at Low Reynolds Number

Key Words:

Finite Element Method, Incompressible Flow, Morphing, Frequency Lock-In, Level-Set Method

Summary:

Micro Air Vehicles operates at low Reynolds number. The flight can be affected by very small disturbance and the flow can separate easily. New oscillating profile is proposed for oscillating the leading edge of NACA0012 airfoil. The incompressible Navier-Stokes equations are numerically solved using Galerkin/Least-Squares FEM.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute. I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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Table of Contents

Disclaimer	i
Acknowledgements	ii
List of Tables	v
List of Figures	vi
List of Algorithms	x
Nomenclature	xi
Abstract	xiii
1 Introduction and Literature Review	1
1.1 Low Reynolds Number Aerodynamics	1
1.1.1 Introduction to micro air vehicles	1
1.1.2 Airfoil Characteristics at Low Reynolds Numbers	2
1.1.3 Passive and active control methods	4
1.1.3.1 Passive flow control methods	4
1.1.3.2 Active flow control methods	5
1.2 Fixed grids and capturing methods	7
1.3 Level-Set Method	7
1.4 Objectives of the Thesis	9
2 Numerical Solver of Navier-Stokes Equations	10
2.1 Unsteady incompressible Navier—Stokes equations	10
2.1.1 Continuity equation	10
2.1.2 Momentum equations	10
2.2 Finite Element formulation	11
2.2.1 Spatial discretization	11
2.2.2 Matrix formulation	12
2.3 Solver Algorithms	15
3 Validation	19
3.1 Solver Information	19
3.2 Two-dimensional unsteady incompressible Navier—Stokes equations	19
3.2.1 Governing equations	19
3.2.2 Lid-driven cavity problem	20
3.2.2.1 computational domain and boundary conditions	20
3.2.2.2 results and discussion	21
3.2.3 Flow around a two-dimensional cylinder	25
3.2.3.1 Computational domain and boundary conditions	25

3.2.3.2	Results	26
3.2.4	Flow over oscillating cylinder	27
3.2.4.1	Computational domain and boundary conditions	28
3.2.4.2	Results	29
3.2.5	Flow over stationary airfoil	32
3.2.5.1	Computational domain and boundary conditions	32
3.2.5.2	Results	33
4	Periodic Morphing Control	34
4.1	Morphing Technique	34
4.2	Validation of Lock-In Frequency	35
4.2.1	Mesh independence test	35
4.2.2	Time step and solver parameters	35
4.2.3	Grid generation	36
4.2.4	Results of frequency lock-in	37
4.3	Effect of Changing the Reynolds Number and the Angle of Attack on the frequency Lock-in Region	44
4.3.1	Case 1: $Re=6000$ and $\alpha = 6^\circ$	44
4.3.2	Case 2: $Re=4000$ and $\alpha = 6^\circ$	46
4.3.3	Case 3: $Re=5000$ and $\alpha = 7^\circ$	48
4.3.4	Case 4: $Re=5000$ and $\alpha = 4^\circ$	51
4.4	Effect of the oscillating position	55
4.5	Proposed new morphing profile	58
5	Summary and Conclusion	62
5.1	Thesis Summary	62
5.2	conclusion	63
5.3	Future Work	63
5.3.1	Three Dimensional Model	63
5.3.2	Turbulence Model	64
5.3.3	Arbitrary Lagrangian Eulerian Algorithm	64
5.3.4	Modification to the solver	64
	References	65

List of Tables

4.1	Effect of Mesh variation on mean and maximum C_l	35
4.2	Effect of time step variation on mean and maximum C_l	36

List of Figures

1.1	Classification of aircraft with respect to Reynolds number and gross weight [3]	2
1.2	Effect of Reynolds number on airfoil maximum sectional lift-to-drag ratio. (Adapted from McMasters and Henderson[4] and Mueller[5].)	3
1.3	Structure of laminar separation bubble [7] [8]	3
1.4	Wheeler wishbone and thin ramped cone generators [29]	5
1.5	Schematic of suction position Lei et al. Work [33]	6
1.6	Schematic drawing of NACA0012 airfoil with a locally oscillating surface adopted from Kang et al. [35]	6
1.7	Schematic diagram for the sum of angles algorithm.	8
1.8	Schematic diagram for the modified polygon algorithm.	9
2.1	Local transformation of axes between $[x,y]$ and elemental axis $[\zeta,\eta]$	11
3.1	Schematic drawing of the lid-driven cavity problem.	20
3.2	The discretized domain of the cavity problem.	21
3.3	Velocity and streamline for lid-driven cavity at $Re=10$	21
3.4	Directional velocities for Lid-Driven Cavity At $Re=10$ At Steady State . .	22
3.5	Comparison of the x-component of the velocity with the work of Pakdel [54] at $x=0.5$	22
3.6	Velocity and streamline for lid-driven cavity at $Re=100$	23
3.7	Directional velocities for lid-driven cavity at $Re=100$ at steady state . . .	23
3.8	Comparison of the x-component of the velocity with the work of Hirsch [55] at $x=0.5$	23
3.9	Velocity and streamline for lid-driven cavity at $Re=1000$	24
3.10	Directional velocities for lid-driven cavity at $Re=1000$ at steady state . . .	24
3.11	Comparison of the x-component of the velocity with the work of Tzudayer[53] at $x=0.5$	24
3.12	Different flow regimes over a cylinder.	25
3.13	The discretized domain of flow over stationary cylinder problem.	25
3.14	Contours of (a) Total Velocity, (b) Axial velocity, (c) Vertical velocity, (d) Vorticity at non dimensionaless time $t^* = 125$	26
3.15	Comparison between the current work and Tezduyar Work	27
3.16	Computational domain discretization of the flow over oscillating cylinder problem.	28
3.17	Schematic drawing of The flow domain of flow over oscillating cylinder problem.	28
3.18	Contours of (a) Total velocity, (b) Axial velocity (c) Vertical velocity, (d) Vorticity for the flow over oscillating cylinder at $t^* = 200$ and $fe = 0.8$. . .	29
3.19	Contours of (a) Total velocity, (b) Axial velocity (c) Vertical velocity, (d) Vorticity for the flow over oscillating cylinder at $t^* = 200$ and $fe = 1.0$. . .	30
3.20	Contours of (a) Total velocity, (b) Axial velocity (c) Vertical velocity, (d) Vorticity for the flow over oscillating cylinder at $t^* = 200$ and $fe = 1.1$. . .	30

3.21	Lift and drag coefficients for different excitation frequencies - current work	31
3.22	Grid around the airfoil	32
3.23	Airfoil captured by the Level-Set Method	32
3.24	Total velocity contours and vorticity contours around NACA0012 airfoil at angle of attack 4°	33
4.1	Kang et al. [34] deformation profile for the leading edge morphing. Where the x-axis represents the non-dimensional x-coordinate $x=(\tilde{x}/c)$ and the y-axis represents the non-dimensional y-coordinate $y=(\tilde{y}/c)$	34
4.2	Grid around leading edge of NACA 0012 Airfoil	36
4.3	Velocity and vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6°	36
4.4	Variation of the primary and the secondary frequency with the excitation frequency	37
4.5	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 0.41$	38
4.6	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 0.6$	38
4.7	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 0.8$	39
4.8	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 1.0$	39
4.9	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 1.2$	39
4.10	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 1.4$	40
4.11	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 1.667$	40
4.12	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 1.76$	40
4.13	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 1.9$	41
4.14	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 2.1$	41
4.15	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 2.3$	41
4.16	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 2.5$	42
4.17	Vorticity contours around NACA0012 airfoil at $Re = 5000$ and angle of attack of 6° at excitation frequency $f_e = 2.71$	42
4.18	Spectral analysis of flow with different oscillating frequencies at $Re = 5000$ and angle of attack 6° at excitation frequencies (a) 0.6, (b) 1.2, (c) 1.667, (d) 2.71	43
4.19	Comparison between the excitation frequency and the primary and sec- ondary frequencies of the flow with $A_o = 0.00365$ and $A_e = 0.00222$ at $Re=6000$ and $\alpha = 6^\circ$	44

4.20	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 6000$ and angle of attack of 6° at $f_e = 0.4$ with $A_o = 0.00365$ and $A_e = 0.00222$.	45
4.21	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 6000$ and angle of attack of 6° at $f_e = 0.6$ with $A_o = 0.00365$ and $A_e = 0.00222$.	45
4.22	Vorticity Contours and streamlines around NACA0012 airfoil at $Re = 6000$ and angle of attack of 6° at $f_e = 1.4$ with $A_o = 0.00365$ and $A_e = 0.00222$.	45
4.23	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 6000$ and angle of attack of 6° at $f_e = 1.8$ with $A_o = 0.00365$ and $A_e = 0.00222$.	46
4.24	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 6000$ and angle of attack of 6° at $f_e = 2.5$ with $A_o = 0.00365$ and $A_e = 0.00222$.	46
4.25	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 6000$ and angle of attack of 6° at $f_e = 2.7$ with $A_o = 0.00365$ and $A_e = 0.00222$.	46
4.26	comparison between the excitation frequency and the primary and secondary frequencies of the flow with $A_o = 0.00365$ and $A_e = 0.00222$ at $Re=4000$ and $\alpha = 6^\circ$.	47
4.27	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 4000$ and angle of attack of 6° at $f_e = 0.4$ with $A_o = 0.00365$ and $A_e = 0.00222$.	47
4.28	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 4000$ and angle of attack of 6° at $f_e = 1.5$ with $A_o = 0.00365$ and $A_e = 0.00222$.	48
4.29	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 4000$ and angle of attack of 6° at $f_e = 1.7$ with $A_o = 0.00365$ and $A_e = 0.00222$.	48
4.30	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 4000$ and angle of attack of 6° at $f_e = 2.7$ with $A_o = 0.00365$ and $A_e = 0.00222$.	48
4.31	comparison between the excitation frequency and the primary and secondary frequencies of the flow with $A_o = 0.00365$ and $A_e = 0.00222$ at $Re=5000$ and $\alpha = 7^\circ$.	49
4.32	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 7° at $f_e = 0.4$ with $A_o = 0.00365$ and $A_e = 0.00222$.	49
4.33	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 7° at $f_e = 0.6$ with $A_o = 0.00365$ and $A_e = 0.00222$.	50
4.34	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 7° at $f_e = 1.4$ with $A_o = 0.00365$ and $A_e = 0.00222$.	50
4.35	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 7° at $f_e = 1.8$ with $A_o = 0.00365$ and $A_e = 0.00222$.	50
4.36	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 7° at $f_e = 2.5$ with $A_o = 0.00365$ and $A_e = 0.00222$.	51
4.37	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 7° at $f_e = 2.7$ with $A_o = 0.00365$ and $A_e = 0.00222$.	51
4.38	comparison between the excitation frequency and the primary and secondary frequencies of the flow with $A_o = 0.00365$ and $A_e = 0.00222$ at $Re=5000$ and $\alpha = 4^\circ$.	52
4.39	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 4° at $f_e = 0.4$ with $A_o = 0.00365$ and $A_e = 0.00222$.	52
4.40	Vorticity contours and streamlines around NACA0012 airfoil at $Re = 5000$ and angle of attack of 4° at $f_e = 0.5$ with $A_o = 0.00365$ and $A_e = 0.00222$.	53