



Aerodynamic and Aeroelastic Shape Optimization of Aircraft Wings

Conlan-Smith, Cian

Publication date:
2020

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Conlan-Smith, C. (2020). *Aerodynamic and Aeroelastic Shape Optimization of Aircraft Wings*. Technical University of Denmark. DCAMM Special Report No. S282

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Thesis corrections

- Page v, publication [P2] title changed to adhere to journal guidelines:

[P2] **Cian Conlan-Smith** and Casper Schousboe Andreasen. "Aeroelastic optimization of aircraft wings using a coupled three-dimensional panel-beam model". In: *AIAA Journal* (2020). Accepted/In press.

- Page v, publication [P3] title changed to adhere to journal guidelines:

[P3] **Cian Conlan-Smith**, Néstor Ramos-García, and Casper Schousboe Andreasen. "Aerodynamic shape optimization of highly non-planar raised and drooped wings". In: *Journal of Aircraft* (2020). Submitted/under review.

- Page 13, equation 2.4, transpose symbol ("T") removed from right hand side:

$$\frac{\partial \mathbf{R}}{\partial \mathbf{s}} \boldsymbol{\lambda} = -\frac{\partial f}{\partial \mathbf{s}}$$

- Page 24, equation 2.30, bottom right entry in matrix, subscript changed from "xz" to "zz":

$$\begin{Bmatrix} F_x \\ F_y \\ F_z \\ M_x \\ M_y \\ M_z \end{Bmatrix} = \underbrace{\begin{bmatrix} GA & 0 & 0 & 0 & -GAs_z & 0 \\ 0 & EA & 0 & EAe_z & 0 & -EAe_x \\ 0 & 0 & GA & 0 & GAs_x & 0 \\ 0 & EAe_z & 0 & E(I_{xx} + Ae_z^2) & 0 & -EI_{xz} \\ -GAs_z & 0 & GAs_x & 0 & G(K + A(s_x^2 + s_z^2)) & 0 \\ 0 & -EAe_x & 0 & -EI_{xz} & 0 & E(I_{zz} + Ae_x^2) \end{bmatrix}}_{\mathbf{K}_{cs}} \begin{Bmatrix} \gamma_x \\ \gamma_y \\ \gamma_z \\ \kappa_x \\ \kappa_y \\ \kappa_z \end{Bmatrix}$$

- Page 25, equation 2.34, last term updated to integral form:

$$\mathbf{f}_{i,e}(\mathbf{u}) = \int_{l_e} \bar{\mathbf{B}}^T \mathbf{T}(\mathbf{u})^T \mathbf{K}_{cs} \begin{Bmatrix} \gamma_l \\ \kappa_l \end{Bmatrix} dl_e$$