



Professor Mathias Legrand

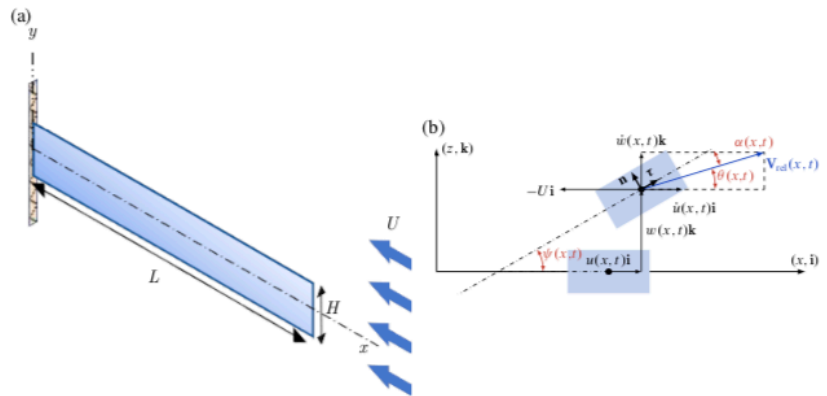


Figure 1: (a) Inverted flag, idealized as a thin Euler-Bernoulli beam in axial flow, free at the upstream end and clamped at the downstream end, (b) Generic infinitesimal element of the beam.

From: Mohammad Tavallaeinejad, Mathias Legrand and Michael P. Païdoussis, “Nonlinear dynamics of slender inverted flags in uniform steady flows”, *Journal of Sound and Vibration*, Vol. 467, Article 115048, 17 February 2020

See:

<https://www.mcgill.ca/mecheng/mathias-legrand>

https://www.researchgate.net/scientific-contributions/2079912131_Mathias_Legrand

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Research Interests:

My research work is concerned with theoretical knowledge as well as the development of new tools and methods capable of bringing solutions to practical problems in the industrial sphere. Related research and education are focused on Structural Dynamics, Nonlinear and Nonsmooth Vibrations, Reduced-order models, and Wave Propagation.

Selected Publications:

Ivan Breslavsky, Marco Amabili, Mathias Legrand. “Physically and geometrically non-linear vibrations of thin rectangular plates”. *International Journal of Non-Linear Mechanics* 58 2014, 30–40.

Ivan D. Breslavsky, Mathias Legrand and Marco Amabili, “Vibration of a square hyperelastic plate around statically pre-loaded state”, August 2014, (publisher not given in the pdf file), <https://www.researchgate.net/publication/281657721>

Ivan Breslavsky, Marco Amabili and Mathias Legrand, “Nonlinear vibrations of thin hyperelastic plates”, *Journal of Sound and Vibration*, Vol. 333, No. 19, pp 4668-4681, September 2014

Ivan Breslavsky, Marco Amabili and Mathias Legrand, “Static and dynamic behaviors of circular cylindrical shells made of hyperelastic arterial materials”, *ASME Journal of Applied Mechanics*, Vol. 85, No. 5, pp 051002, 2016

Breslavsky, I.D., Amabili, M., Legrand, M., Alijani, F.: Axisymmetric deformations of circular rings made of linear and Neo-Hookean materials under internal and external pressure: a benchmark for Finite Element codes. *Int. J. Non-linear Mech.* 84, 39–45 (2016)

Mohammad Tavallaeinejad, Mathias Legrand and Michael P. Païdoussis, “Nonlinear dynamics of slender inverted flags in uniform steady flows”, *Journal of Sound and Vibration*, Vol. 467, Article 115048, 17 February 2020