

Abstract Submitted  
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**Aerofoil wall pressure fluctuations in the presence of a serrated trailing edge** MATTHIEU GELOT, JAE WOOK KIM, Univ of Southampton — A cambered Joukowski aerofoil with 12% thickness is studied in a wall-resolved large-eddy simulation at  $Re_\infty = 500000$ ,  $M = 0.2$  and  $6^\circ$  incidence. The main objective is to investigate the behaviour of the pressure fluctuations on the aerofoil surface and its impact on the broadband noise reduction while using a serrated trailing edge geometry. A sawtooth serrated trailing edge with aspect ratio 1.0 is compared to a reference baseline trailing edge. The present investigation delivers an in-depth spectral analysis and shows how both the magnitude and the phase of the surface pressure fluctuations play a role in the noise reduction mechanism. Furthermore, the study also shows how the wall pressure fluctuations information lying upstream of the trailing edge has a significant impact in the far-field sound prediction and how this information can be useful to elaborate a serrated trailing edge wall pressure fluctuations model.

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