

# USING ISOGEOMETRIC ANALYSIS OF TURBULENT FLOWS ON MOVING DOMAINS TO ASSESS THE FLUTTER STABILITY LIMIT OF LONG-SPAN SUSPENSION BRIDGES

Tore A. Helgedagsrud<sup>1,\*</sup>, Yuri Bazilevs<sup>2</sup>, Kjell M. Mathisen<sup>1</sup>  
and Ole A. Øiseth<sup>1</sup>

<sup>1</sup> Department of Structural Engineering, Norwegian University of Science and Technology (NTNU), Richard Birkelands v 1a, NO-7491 Trondheim, Norway,

\**Email address:* tore.a.helgedagsrud@ntnu.no

<sup>2</sup> School of Engineering, Brown University, 184 Hope Street, Providence, RI 02912, USA

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We investigate using Isogeometric Analysis (IGA) of turbulent flows of moving domains to assess the flutter stability limit of long-span bridges by the forced-vibration method. In order to verify the simulations, we compare the results directly to the corresponding forced-vibration wind tunnel experiments. In addition, the derived flutter characteristics are compared to free-vibration wind tunnel experiments. The numerically and experimentally obtained aerodynamic derivatives are in very good agreement, and in terms of the flutter mode shape and critical wind speed, the simulations produce equally good estimates as the experiments. The present work proves IGA to be a reliable tool in engineering design and analysis of long-span bridge aerodynamics.