INVESTIGATION OF AERODYNAMIC LOADING ON A TRAIN PANTOGRAPH

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ABSTRACT
This preliminary study investigates the flow around a train pantograph performed by a 4th-year Mechanical Engineering student at the University of Strathclyde. We study the effects of wind speed and direction on the forces applied on the pantograph and further discuss the effect of the attached airfoils on the aerodynamic forces. ANSA has been utilised to create a 3D mesh around the complex geometry of the pantograph. In addition, new capabilities of automated mesh generation through ANSA are discussed and results between different meshes are presented. Post-processing of the results is carried out in the CFD package as well as through the post-processing capabilities of META. Through this study, we want to highlight how pre- and post-processing tools can be used to effectively contribute to the aerodynamic study of complex geometries by inexperienced users under little guidance.