

DocumentID	241188
Vortragstitel	First Results of the Groundtest of a Fibre Reinforced continuous flexible Gap and Stepless Smart Droop Nose for High Lift Applications
Autoren	M. Kintscher, H.P. Monner, J. Riemenschneider, M. Wiedemann
Preisträger	
Vortragssprache	englisch
Seiten	10
Veranstaltung	Deutscher Luft- und Raumfahrtkongress 2011
Veranstaltungsort	Bremen
Veröffentlicht in	Deutscher Luft- und Raumfahrtkongress, Tagungsband - Manuskripte, 2011; Seite 475 - 485; DGLR e.V.; Bonn; 2011
Stichwörter	Smart Droop Nose High Lift
Abstract	<p>In order to reduce the airframe noise during landing and the drag in cruise flight, a smart droop nose is a good alternative compared to conventional high lift devices like slats at the leading edge of an aircraft. Furthermore a gap and step less high lift device at the leading edge can be seen as pioneering technology for natural laminar flow application at the wing and further drag reduction in the future. In the framework of the fourth German national research program in aeronautics a smart leading edge was developed by the partners Airbus, EADS-IW, CASSIDIAN and the DLR. The presented paper shows the first results of a 1:1 ground test of a 3D fiber reinforced continuous flexible smart droop nose section for high lift applications. The paper illustrates and explains the concept of the smart droop nose and the test setup of the ground test. Subsequently first results of the ground test i.e. measurements of the deformation behavior of the leading edge at maximum deflection angle will be presented. The deformation at maximum deflection angle will then be compared to the results of finite element simulations with subsequent discussion of deviations. Finally the overall performance of the leading edge segment and deviations from the calculated results will be discussed and assessed.</p>