

# NUMERICAL SIMULATION OF THE INTERACTION OF SIDE FLAP VORTICES AND ENGINE JETS

**E. Fares, M. Meinke, W. Schröder**  
**Aerodynamisches Institut der RWTH Aachen,**  
**Wüllnerstrasse 5-7, D-52062 Aachen, Germany,**  
**e-mail: ehab(@aia.rwth-aachen.de**

## **Abstract**

*The increasing aircraft traffic requires optimized take-off and landing frequencies. The minimum distance of landing or starting aircrafts is dependant on the behaviour of the trailing vortices from leading airplanes. Several mechanisms exist for the weakening or even the destruction of these vortices. A detailed prediction of the velocity field would require the simulation of the wake flow field including all flap vortices and also the engine jets.*

*In a first step the near wake of a high-lift configuration is investigated with the help of numerical simulations in this paper. The main focus is put on the influence of the engine jet on the development of the side flap vortex. The essential details of the solution technique such as the grid generation, turbulence modeling as well as the implementation of the chosen algorithms on vector/parallel computers are presented.*