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Large-eddy simulation of a turbulent flow over the DrivAer fastback vehicle model[1] MARIO RUETTGERS, JUNSHIN PARK, DONGHYUN YOU, Pohang University of Science and Technology — In 2012 the Technical University of Munich (TUM) made realistic generic car models called DrivAer available to the public. These detailed models allow a precise calculation of the flow around a lifelike car which was limited to simplified geometries in the past. In the present study, the turbulent flow around one of the models, the DrivAer Fastback model, is simulated using large-eddy simulation (LES). The goal of the study is to give a deeper physical understanding of highly turbulent regions around the car, like at the side mirror or at the rear end. For each region the contribution to the total drag is worked out. The results have shown that almost 35% of the drag is generated from the car wheels whereas the side mirror only contributes 4% of the total drag. Detailed frequency analysis on velocity signals in each wake region have also been conducted and found 3 dominant frequencies which correspond to the dominant frequency of the total drag. Furthermore, vortical structures are visualized and highly energetic points are identified.

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