

## **Air Quality Simulation for Interior of an Automobile**

**Bo Mei and Xiuling Wang**

### **Summary**

Automobiles are used every day and air quality in the automobile is directly related to people's health. This paper focuses on the distribution of automotive interior carbon dioxide on the highway. A typical sedan is chosen as a sample. Carbon-dioxide meter and wind meter are used to get essential data. Then, the data is analyzed by the commercial CFD software - GAMBITAR and FLUENTAR. After plotting and comparing the contours of the distribution, how changing the fan speed will change the distribution is got. First, concentration of carbon dioxide at the bottom is always the highest region among the whole domain. Second, along with the increase of the fan speed, a region around the back row near the roof level with high concentration of carbon dioxide will become more and more significant. Third, along with the increase of the fan speed, concentration of carbon dioxide will decrease as a whole. Forth, along with the increase of the fan speed, concentration of carbon dioxide will be more uniform as a whole. Experiments are conducted to verify the simulation results, good agreements are observed.

