K. Nakano LAB.

Safe and Comfort Mobility for Everyone

Department of Mechanical and Biofunctional systems,

Advanced Mobility Research Center (ITS Center)

Mechanical and Biological Systems Control

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Based on the fundamental fields of mechanics, vibration, and control engineering, researches on state monitoring, ergonomics, human-machine interface, automated driving, and cooperative systems related to mobility are conducted. Non-technical issues, called ELSI, are also being addressed, with the aim of implementing these technologies in society. The main research topics are as follows:

1. Research and Development of Human Machine Interface for Driver Initiated Take-over
2. Evaluation of Performance of Shared Control
3. Haptic Steering Assistance Based on Prediction of the Future Trajectory in Line with the Intention of the Driver
4. Fallback System of Automated Driving Vehicle Incorporating Potential Driver Intervention
5. Predicting Readiness and Performance of a Driver for Transitions from Automated to Manual Driving
6. Trajectory Prediction of Surrounding Vehicles Based on Traffic Scenario Understanding
7. Energy Harvesting in Rotating Body
8. Estimation of Condition Between Rail and Wheel from Measured Values of a PQ Wheel
9. Unified Traffic Control System for Railway and Road Vehicles Using Mobile Phone Line
10. Activities to Realize Level 4 Cooperated Automated Mobility Service
11. Building the Method for Social Implementation of Automated Driving Technology Complying with Actual State Based on ELSI