



# SUDA LAB.

## [Dynamics and Control of Vehicle]

Institute of Industrial Science      Advanced Mobility Research Center (ITS center)  
 Department of Mechanical and Bio functional Systems  
 Mobility and Field Science, Social Cooperation Program  
<http://www.nozomi.iis.u-tokyo.ac.jp/>

### Specialized Field ● Dynamic Systems and Control

## Study on Vehicles with Advanced control, Multi-body Dynamics and Environmental Physiology for Sustainable Mobility.

### 1. Active Suspension Control of Vehicle Systems

Self powered and advanced active vibration control applied to ground vehicles, ship, elevator and maglev system

### 2. ITS (Intelligent Transport Systems) Projects

Sustainable ITS project, Energy-saving ITS project, Inter-vehicle communication, ITS project for parking

### 3. Study on Advanced Mobility with Motion Simulators

Development of mixed reality transport experiment space, Comfort evaluation of railway vehicle, Experimental platform for scaled model vehicle

### 4. Dynamics and Monitoring of Vehicle-Infrastructure-Human System

Improvement of curving performance for railway vehicle, Detection of vehicle abnormal state and derailment, Contact mechanics of Wheel/Rail and Tire/Road, Driver characteristics and modeling, Onboard flywheel battery system, Personal mobility vehicle, Variable-boarding-location-type automatic platform gate

### 5. Study on Comfort

Evaluation method, Seat arrangement of commuter train and automobiles, Cabin design of "EcoRide"

### 6. Development of Proving Ground for Advanced Mobility Research

Driving simulator, Railway test track and "EcoRide", Test field for automobile and road traffic, Traffic light

### 7. Multi-body Dynamics

Dynamic analysis of railway vehicle, Automobile, Bicycle, and etc.

**SUDA Lab. 2013**

**Multibody Dynamics and Control**

Ship Anti-Rolling System with Self-Powered Active Control

Tire Test Machine

Electro Magnetic Suspension

**ITS & Automobile**

Maglev System with Controlled Damper

Eco transport system "Eco Ride"

Energy-Saving ITS

Experimental Traffic Light for ITS Research

Personal Mobility Vehicle

**Railway Vehicle**

Full and Scaled Model Rail Vehicle Test Track for Innovative Designed Railway Truck

Variable-boarding-location-type Railway Vehicle Mockup Automatic Platform Gate for Study on Comfort

Driving Simulator with 6 d.o.f motion, Driving Simulator Turntable & 360° Full Screen with Truck Cabin

**Comfort and Human Interface**