

**A Concept of  
Automobiles Aerodynamic Testing  
using the 1-m MSBS in Tohoku University  
Low Turbulence Wind Tunnel**

Yasufumi Konishi, Hideo Sawada,  
Shigeru Obayashi  
Institute of Fluid Science, Tohoku  
University

# What is the MSBS ?

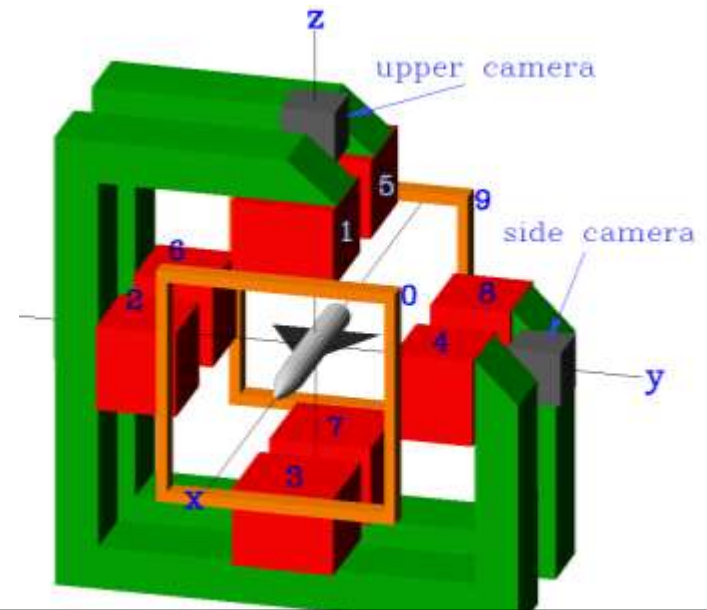
- Magnetic Suspension and Balance System

It can suspend the model without any mechanical support system.

The aerodynamic forces can be estimated directly by measuring the electric currents



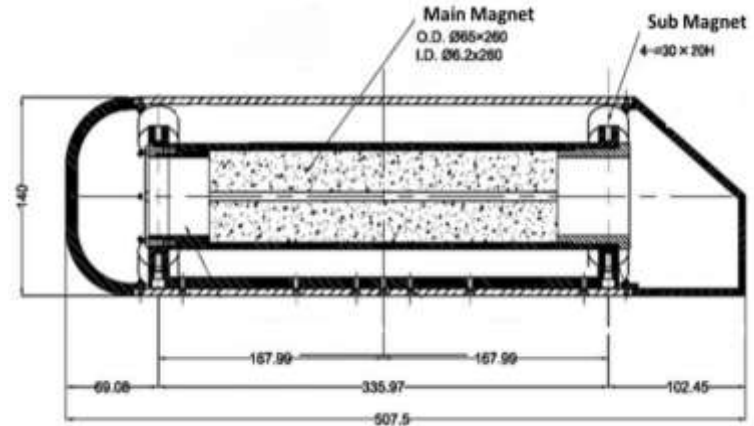
Usually there exist some interference between a model and mechanical support.



The MSBS is the ideal aerodynamic force measurement system on wind tunnel testing.

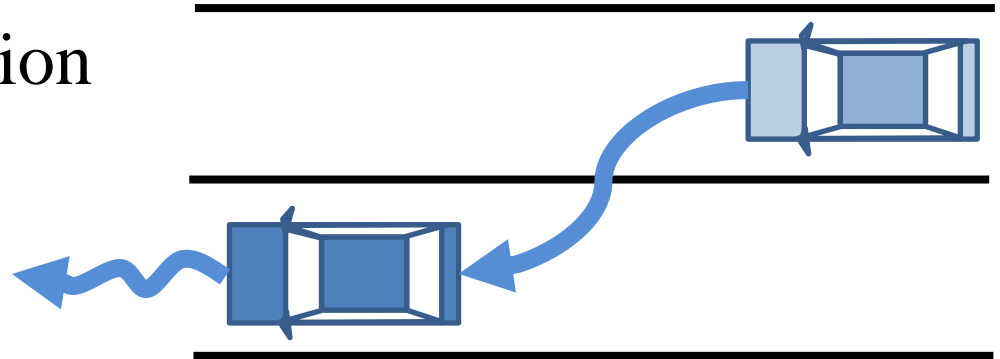
# Automobiles Aerodynamic Testing

The MSBS can simulate unsteady motions of automobiles.



Designed Ahmed model for MSBS

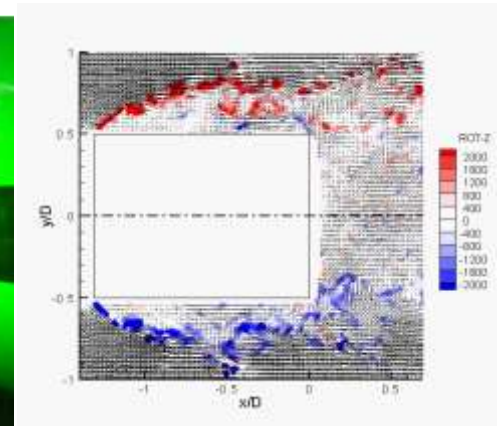
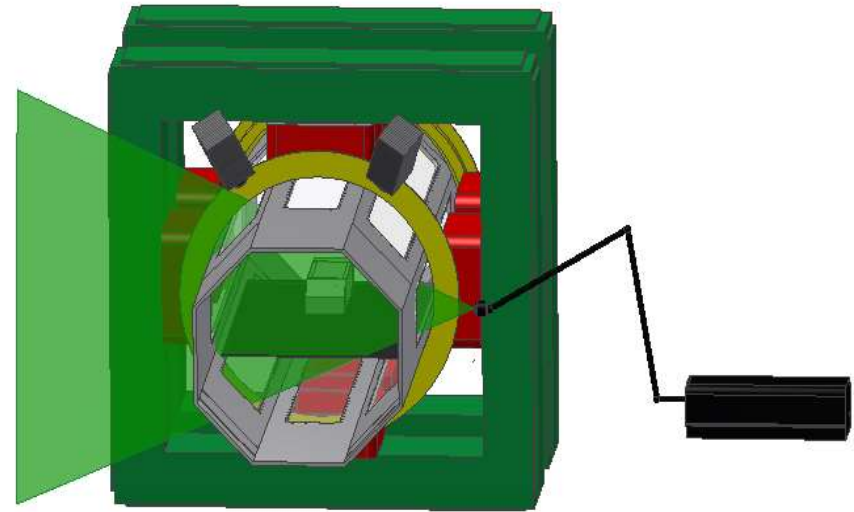
For example we considered yawing motion on the Ahmed model.



The result will be seen in the Poster!

# Non-contact optical measurements

- PSP(Pressure Sensitive Paint) and PIV(Particle Image Velocimetry) will be equipped
- It provide you that time resolved velocity and pressure measurements for ideal flow condition.  
(No support interference,  
No intrusion to the flow)



Example of PIV measurement  
Around a circular cylinder

**Come and See more detail in the Poster !**

