

**Title of my paper:**

Biomechanical Research for the Reduction of Minor Neck Injuries during Rear-end Impacts - Human Volunteer Experiments and Accident Reconstruction Using Human FE Model Simulations –

**Nomination of the authors:**

Koshiro Ono<sup>1)</sup>, Susumu Ejima<sup>1)</sup>, Kunio Yamazaki<sup>1)</sup>, Fusako Sato<sup>1)</sup>, Jonas Aditya Pramudita<sup>2)</sup>, Koji Kaneoka<sup>3)</sup>, and Sadayuki Ujihashi<sup>2)</sup>

1) Japan Automobile Research Institute

2) Tokyo Institute of Technology, Japan

3) Waseda University, Japan

**Abstract**

Injury evaluation parameters were set using a human finite element model based on live volunteer and cadaver experiments, reinforced with data from 20 accidents. It is found that the displacements between the cervical vertebrae can cause neck injuries/persistent symptoms, and 2D strains of the inter-vertebral bodies as injury criteria are defined. The thresholds where WAD2+ injuries occur by making risk curves with NIC and the neck forces, and lead to a proposed neck injury evaluation method. The result is primarily concerned and focused with being a primary candidate for an injury evaluation method that would be scrutinized by WP29/GRSP/HR GTR, where the assessment and examination of minor neck injury reduction seats are deliberated in the world.