Development of a novel electro mobility analyzer based on a new classifying principle and applications for nanoparticles from different types of vehicles under various conditions.

Hiroshi OKUDA 1), Hiroyuki YAMADA 2)
1) Shimadzu Corporation 1, Nishinokyo Kuwabara-cho, Nakagyou-ku, Kyoto 604-8511 Japan
2) National Traffic Safety and Environment Laboratory 7-42-27, Jindaiji-higashi, Chofu, Tokyo 182-0012, Japan

1. Introduction
We developed new device, Nano-Aerosol Monitor (NAM), that...
- has a same sensitivity with PMP system
- is not so expensive.
- can define particle diameter.
- has a possibility to perform PN PEMS

2. New equipment, NAM
- No pre-treatment to remove the volatile particles
- Electrometer for on-board measurement
- Classifier for compatible with PMP system

3. Exhaust observation
Measuring particles from automobiles by the procedure of European type approval tests (not PEMS) with NAM and PMP methodology. And comparing the each results.

4. Result
Comparisons of NAM with PMP methodology in various vehicles, conditions and modes

5. Conclusion
- Comparisons of NAM with PMP were performed by the exhaust of a gasoline DI passenger car and 2 DPF diesel trucks.
- In the measurements of cold start gasoline DI car, exhaust was over-scaled, however except this condition, NAM profiles were agree with those by PMP.
- Correlations of NAM with PMP were excellent even though NAM does not equip VPR.
- This study indicated that NAM can be used for diesel and gasoline-DI engines / vehicles developments.
- We will apply NAM to on-board measurements, near future.