

2007 SAE (Society of Automotive Engineers)

"Harry L. Horning Memorial Award"

– Awarded jointly to Nippon Oil Corporation and Nissan Motor for "Thesis on HCCI Combustion" –

Nippon Oil Corporation (President: Shinji Nishio) is pleased to announce that, together with Nissan Motor Company Limited we have been awarded with the SAE\*1 "Harry L. Horning Memorial Award" for our "Thesis on HCCI (Homogeneous-Charge Compression-Ignition) combustion research."

The "Harry L. Horning Memorial Award" was established in 1938 in commemoration of Mr. Harry L. Horning, the then chairman of SAE, and is a very historical and honorable award that is awarded to one fuel combustion research thesis, selected each year from more than 3,000 theses, that most contributes to the development of automobiles.

The HCCI engine\*2 is a next-generation, environment-responsive engine capable of reducing nitrogen oxide (NOx) and CO2 whilst simultaneously improving fuel consumption, and its development requires detailed research based on the effect of fuel composition on the performance of engines. This thesis analyzes in detail the auto-ignition characteristic of each hydrocarbon found in fuel, quantifies changes according to temperature and pressure conditions with regard to the auto-ignition characteristic of hydrocarbon, conventionally thought to be invariable, and suggests new fuel ignition indicators for HCCI engines. These are the very ignition indicators that have been sought by many engine combustion researchers, and the acceleration of research and development for the practical use of HCCI engines is expected thanks to this thesis.

Nippon Oil Corporation group cites "new ideas" and "environmental harmony" as our agenda for action and by challenging the future with new ideas and creating businesses that are harmonized with the global environment we aim to become the most publically supported general energy corporation.

\*1 SAE: (Society of Automotive Engineers)

An organization that standardizes "all power machinery (automotive)" and promotes performance improvements.

Its activities are mainly focused on the American automobile industry but members come from throughout the world and the total number of members in 2006 was approximately 90,000.

\*2 HCCI (Homogeneous-Charge Compression-Ignition) engine

This engine mixes fuel and air prior to ignition in the same way as gasoline engines, ignites and burns by piston compression in the same way as diesel engines, thus its combustion is in an intermediate position between gasoline engines and diesel engines. This engine emits no nitrogen oxide (NOx) and displays thermal efficiency as high as 40% and above, and thus a variety of research has been conducted on this engine as an earth-conscious, dreamy next-generation engine.

Nissan Motor Company Limited and Nippon Oil Corporation have been conducting specific cooperative research regarding the effect of combustion compositions on the combustion of HCCI engines since April 2002, ahead of our competitors, and both corporations were awarded the "Award for Best Presentation" in 2005 and the "Best Paper Award" in 2006 by the Society of Automotive Engineers of Japan (JSAE).

End

Appendix:  [Outline of award ceremony](#)