

**Presented Paper at 2008 JSAE Annual Congress**

We presented a paper as follows at 2008 JSAE\* Annual Congress on May 23, 2008.

\* Society of Automotive Engineers of Japan, Inc.

**1. TITLE**

**Effects of Material and Dimensional Properties on Variations in Natural Frequency of Brake Discs**

Paper No. JSAE 20085094

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**3. ABSTRACT**

Brake squeal is a critical issue for automotive brake systems and its propensity depends on the natural frequencies of brake discs significantly. The variations of natural frequencies are caused by various factors in disc manufacturing process from foundry through machining. In order to reduce those variations, we analyzed the factorial effects of material properties and dimensions on natural frequencies for brake discs by intensive CAE experiments, which were accurately and rapidly completed with the help of our original brake disc design system. As a result, the significant factors affecting disc natural frequencies and their contribution are clarified.

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