

## 서포트 벡터 회귀 기법을 이용한 순차적 근사 최적설계

오상엽<sup>†</sup>(한양대) · 이용빈<sup>\*</sup>(한양대) · 최동훈<sup>\*</sup>(한양대)**Sequential Approximate Optimization  
Using Support Vector Regression**

Sangyup Oh, Yongbin Lee and Dong-Hoon Choi

**Key Words:** Sequential Approximate Optimization(순차적 근사 최적설계, SAO), Support Vector Regression(서포트 벡터 회귀 기법, SVR)**Abstract :** Support Vector Regression (SVR) is getting popular due to its higher accuracy and lower standard deviation than those of existing approximate methods. However SVR has been rarely used for design optimization while it has been applied to many studies such as time series prediction, and statistical learning theory. In this study, an SAO method based on SVR developed. We adopt inherited Optimal Latin Hypercube Design (OLHD) for Design Of Experiment (DOE) and Trust Region (TR) concept for a model management. Finally, in order to show the accuracy and efficiency of the proposed method, several sample problems are solved.

## 차체용 고장력 강판의 고속 인장 특성 연구

김석봉<sup>†</sup>(KAIST) · 허 훈(KAIST) · 김대온(현대 하이스코) · 문만빈(현대 하이스코)**Evaluation of Dynamic Tensile Characteristics  
of the High Strength Steel Sheet for an Auto-body**

Seokbong Kim, Hoon Huh, Daeon Kim and Manbin Moon

**Key Words:** 『High strength steel(고강도강), High speed material testing machine(고속 재료시험기), Strain rate(변형률 속도), Dynamic tensile test(동적 인장시험)』**Abstract :** This study evaluates the dynamic tensile characteristics of high strength steel sheets, HS45R, TRIP60, DP60 and DP100, along the rolling direction and transverse direction. Static tensile tests were carried out at the strain rate of 0.003/sec using the static tensile machine (Instron 5583). Dynamic tensile tests were carried out at the range of strain rate from 0.1/sec to 200/sec using a high speed material testing machine developed. The tensile tests acquire stress-strain relation and strain rate sensitivity of each material. The experimental results show two important aspects for high strength steels: the flow stress is increased as strain rate increases; the strain hardening is decreased as the tensile stress increases. The experiments also produce interesting results that the elongation is not decreased even when the strain rate increases.