Abstract:

In modern society the automobile is an essential companion in everyday life. Be it commuting to and from work or during our leisure time -- every week most of us spend many hours sitting in their car. In this context the seat is the main interface between the human being and the automobile itself. Functioning well, this close relationship can foster the well-being of the passenger and raise his spirit; being flawed, it can cause severe pain in the back after a long journey. Thus, for car manufacturers, the aspects of seat comfort are becoming more and more prominent in distinguishing themselves from their competitors. Despite its importance, the development of comfort parameters in automotive seating still is consigned to the subjective judgements of a small number of seating experts or randomly selected test subjects. Easily influenceable by parameters like affection, physical conditions, environmental factors and a lack of standardization, these subjective evaluations have a big intra individual and inter individual range. A first approach to improve the objective judgement of an automotive seat was made by the concept of `optimal' load distribution (Mergl, 2006; Zenk, 2006), based on the identification of a close interconnection between the pressure on the seat and the discomfort felt by the person sitting on it. In the next step further objectification of seat comfort will be achieved by an in vivo measuring of the pressure in the spinal disc (Zenk, 2007), which is a reliable indicator for the load in the spine. There is more than just discomfort in seat evaluation, which is connected to the aspects of poor biomechanics, fatigue and strain. In the near future there will be an increasing demand for the customer-specific development of well being in order to fulfil the need for a more comfortable live (Bubb, 2004). In the next step we have to concentrate more on the comfort factors
which deal more with the impression, aesthetics and sense of well being (compare Figure 1). In this article a new questionnaire will be developed to bring more emotion and design aspects to the seat comfort evaluation. In this approach both things will be brought together -- the haptics and feelings from the seat and the optic influence of the seat design which will give an overall seat comfort evaluation. From these results we will be able to improve our knowledge of how to avoid uncomfortable seating in automobiles, and also make well-founded recommendations for seat design.