

## Development of smart materials in USA

Kanryu Inoue

University of Washington, Materials Science and Engineering,  
Seattle, WA 98195-2120

Smart materials are the materials designed in such a way that their unique properties are intelligently utilized so as to exhibit functional properties and behaviors as coupling effects among mechanical, thermal, electromagnetic and optical behavior. Such smart materials become key elements of many devices, including actuators for aerospace and bio-medicines, and optically re-configurable antennas for telecommunication.

Recently, smart materials study becomes quite active in the USA, mainly because of dynamic support from the US government emphasizing in development of robust actuators for various applications. In the present paper, recent development of smart materials studied in the USA will be presented with emphasis on thermally and magnetically activated shape memory materials, and piezoelectric ceramics.