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동시 소결법에 의한 PZN-PZT와 PZN-PZT/Ag로 구성된 Flextensional 액츄에이터의 제조

Flextensional Actuators Composed of PZN-PZT and PZN-PZT/Ag Composite by Co-firing Method

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Two-layered, three-layered flextensional actuators composed of PZN-PZT and PZN-PZT/Ag were fabricated Since PZN-PZT was sintered at low temperature (<900°C), silver electrode was co-sintered with PZN-PZT. Silver electrode as an inactive part of flextensional actuator was mixed with PZN-PZT to minimize densification mismatch without destroying the conductive properties The optimum weight fraction of the refractory phase (Ag) was determined as 30~40 wt% PZN-PZT and Ag composite was sintered into fully dense bodies and was co-sintered with PZN-PZTwithout any interface problem PZN-PZT/Ag composite had approximately same resistivity with pure Ag, resulting in a conductive channel of dispersed Ag particles in PZN-PZT matrix

Using this PZN-PZT and PZN-PZT/Ag composite, the two-layered, three-layered actuators were fabricated with the dimension of 20 mm in diameter and 0 9 mm in thickness The specimens bent into convex dome shape at the electric voltage, yielding a large displacement These two-layered, three-layered actuators may be applied to ceramic actuators such as unimorph, bimorph, multi-layer actuator