指叉型電壓元件極化之分析與製作

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摘 要

傳統壓電陶瓷應用時有易碎之缺點，開發新型態兼具高性 能之感測、致動壓電特性與自適型柔性結構之壓電元件對於未來有相當大的潛力。為提升壓電元件之感測與致動能力，需利 用表面指叉電極極化技術，製作高效率d33 型壓電元件。 本文利用有限元素分析軟體ANSYS 對於表面電極的設計 做一最佳化的評估。並分析高電壓作用下指叉電極間的電場大 小以及分佈狀況，以利於判斷極化電場是否合適。結合厚度以 及極化距離分析結果，設計出一合適的作用電場以及極化間 距。並建立一標準製程製作指叉型壓電元件。並用量測儀器測 量其特性，與ANSYS 模擬分析結果兩者做一比較驗證。未來將朝向將此壓電智能元件擁有高自適型的柔性結構，並且朝向 高性能以及高感測前進。

關鍵詞 : 壓電，指叉電極，極化

目錄

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