

MEMS压力传感器在义齿力学性能研究中的应用

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摘要：

本文详细给出了一种用于义齿压力测量的微型电容式传感器的研制工艺和封装测试。文中根据电容式压力传感器的原理，采用MEMS工艺，研制出微型传感器。在与义齿基托相同材料的作底基的树脂上挖一个边长为2mm平整的方形小坑，将传感器分布式埋植入底基，并用自制的施加压力的装置对传感器进行测试，从而检测出压力对口腔下方组织的作用力。测量结果表明，该传感器能够准确地测量出当牙齿咬合时，义齿基托所承受的力和力的分布。该传感器性能良好，具有比较稳定的输入与输出关系，适用于口腔恶劣环境下测量义齿对口腔下方组织作用力。

关键词：义齿；电容式传感器；MEMS；传感器测试

MEMS capacitance sensor used in the measuring pressure on the false tooth

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Abstract:

A kind of MEMS capacitance sensor used in the measuring pressure on the false tooth is expressed in the paper. According to the theory of capacitance pressure sensor, the paper adopted the MEMS craft to develop the pressure sensor. The sensor is embed distributedly in the base of synthetic resin whose material is the same to the pedestal of false tooth. Then we used homemade device which is made to load pressure to test the sensors, so that we can work out the strength on the below structure of the oral cavity. From the result of test, it is showed that the sensor is fine in its performance and has good stability to express the relationship between input and output. It is applicable in measuring the strength on the below structure of the oral cavity especially when it used under the foul circumstance in oral cavity.

Keywords: false tooth; capacitance sensor; MEMS; test of sensor

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