



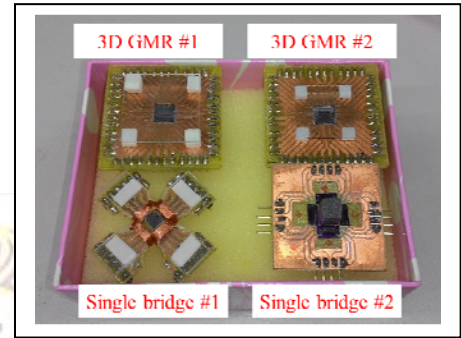
單電橋磁場感測器

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簡歷：(可列出相關連結，例如系所、研究室網頁)

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市場及需求：

全球的磁感測器(或稱為 M-sensor)市場在 2013 年已到達 16 億美元，估計在 2020 年前的年成長率為 8%。磁場感測器應用成長最快的市場為行動裝置的數位羅盤，在 2015 年，大約每兩個行動裝置產品(手機、平板電腦等)就有一個配備 M-sensor。

技術摘要(含成果)：

具有三維磁場感測能力的磁場感測元件設計，採用平面化自旋閥巨磁阻薄膜、磁通導引器、與磁通集中器形成一個單電橋微型感測器，透過電路形態切換，使磁場向量感測得以藉由一個磁阻電橋完成。磁通導引器與磁通集中器整合可使磁通密度增強且分佈均勻，並簡化製程。

優勢：

本發明可使三軸磁場感測晶片的體積縮小至 1 mm^3 以內，可應用於行動裝置之數位羅盤與多軸感測器整合。

競爭產品：

AKM Electronic Compass, Honeywell Digital Compass, etc.

專利現況：

- (1)本技術已有相關專利(中華民國專利申請號: 102143500, 103141609)。
- (2)本研究團隊已有數十年相關研究經驗，為國內磁感測器領域研究主力。
- (3)此技術為本研究團隊所獨創，未見於國內外相關專利文獻。

聯絡方式(請不用填)：

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Single-Bridge magnetic field sensor

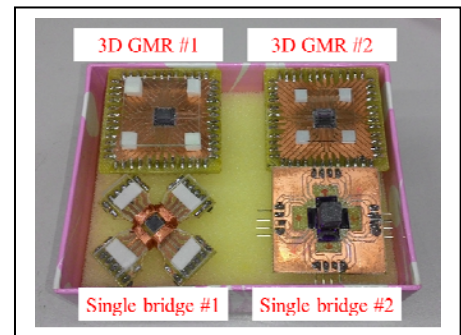
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Experience:

http://www.phys.ntu.edu.tw/member/main1.aspx?mem_id=78

Market Needs:

Global magnetic sensor (or M-sensor) market in 2013 has reached \$1.6 billion, estimated 2020 annual growth rate of 8%. The digital compass mobile devices is the fastest growing application of magnetic field sensors. In 2015, for every two mobile devices (mobile phones, tablet computers, etc.) there is one equipped with M-sensor.



Our Technology:

A design of three-dimensional magnetic field sensor comprising planar spin valve GMR film, a flux guide, and flux concentrators to form a single bridge miniature sensor. Through the switching of circuit form, 3-axis sensing can be implemented with a single bridge of GMR elements. The integration of flux guide and flux concentrators allows the enhancement in uniformity and density of magnetic flux. It also simplifies the fabrication process.

Strength:

The present invention allows the volume of the three-axis magnetic sensor chip be reduced to less than 1 mm^3 , which can be applied to digital compass and multi-axis sensor integration in mobile devices.

Competing Products:

AKM Electronic Compass, Honeywell Digital Compass, etc.

Intellectual Properties:

- (1) Related patents: ROC patent application nos. 102143500 & 103141609.
- (2) Dominate domestic research group in magnetic sensors.
- (3) Unique technology, not found in the domestic and foreign patent documents.

Contact (do not need to fill out):

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