課題番号　　　　　　　　　：F-14-TU-0044
利用形態　　　　　　　　　：機器利用
利用課題名（日本語）　　　：機能性材料を用いた MEMS/NEMS
Program Title (English)　：MEMS/NEMS using functional materials
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1. 概要（Summary）

To make micro/nano structures on silicon substrate, we use equipments in Tohoku Univ. Hands-on-access fab.

2. 実験（Experimental）

The equipment we used was Si deep-RIE. Firstly, 1 μm-thick SiO_2 layer was deposited and patterned (pattern B) on the silicon substrate. Subsequently photolithography was used to make pattern A. The Si deep-RIE was employed to define pattern A with certain etching depth using photoresist as the first mask. Finally pattern B was performed to determine the whole structure using SiO_2 as the second mask.

3. 結果と考察（Results and Discussion）

Figure 1 shows the patterned silicon structure fabricated by Si deep-RIE. The diameter of the circular structure is 1 mm.

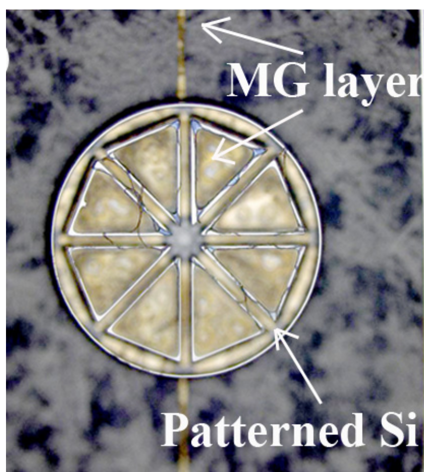

Fig. 1 The patterned silicon structure fabricated by Si deep-RIE.

4. その他・特記事項（Others）

・MEMS/NEMS: Micro/Nano electro mechanical systems

・RIE (reactive ion etching): a standard fabrication method to etch silicon with a dry way.

5. 論文・学会発表（Publication/Presentation）

(1) K. Vogel, M. Wiemer, T. Gessner, J. Vogel, Y. -C. Lin, M. Esashi and S. Tanaka, Proceedings of The Smart Systems Integration, Mar. 11-12, (2015).

(2) Y. -C. Lin, Y. -C. Tsai, M. Esashi and T. Gessner, Proceedings of The AIMR International Symposium 2015, Feb. 16-19, pp. 93 (2015).

6. 関連特許（Patent）

なし。