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利用形態 : 技術代行
利用課題名(日本語) : 次世代メモリ開発
Program Title(English) : Development of next generation memory devices
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1. 概要(Summary)

The carrier mobility is paramount for memory devices since it defines how quickly a carrier can move through the material when pulled by an electric field. Mobility in ultra-thin semiconductor material cannot be measured in the frame of the Hall effect and therefore a new FET-like-ready structure requiring only one lithography step following the thin film formation before its electrical evaluation has been elaborated. The present work deals with fabrication/feasibility of this new structure. The present work is divided into three stages. The first one consists of the realization of the FET-like-ready structure featuring the source and drain contacts as well as the active area that is intended to receive the thin film. The second stage consists of a one-step lift-off process intended to reveal the electrical contacts prepared during the first stage. The first and second stages of the work should be conducted at NIMS. Finally, the last stage is the validation of the reject of the structure through the carrier mobility extraction and should be conducted at TEL.

2. 実験(Experimental)

【利用した主な装置】

高速マスクレス露光装置 (Maskless Lithography)

【実験方法】

The stack from which the FET-like-ready structure should be fabricated has been deposited at TEL and sent to NIMS for processing. Masks have been also

provided by TEL and have been designed in order to work with the Maskless Lithography available at NIMS.

3. 結果と考察(Results and Discussion)

The first lithography and wet etching steps have been carried out and the FET-like-ready structure has been successfully fabricated (as showed in Fig. 1) and sent to TEL, closing the first stage of the work. There, the thin semi conductive layer that must be electrically evaluated has been deposited. The sample has been then sent back to NIMS and the lift-off process should be conducted soon as part of the second stage.

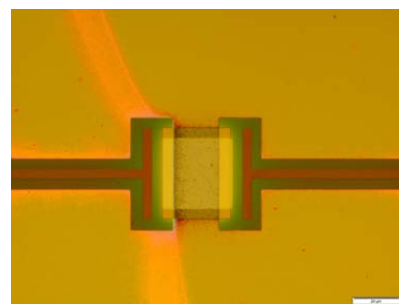


Fig. 1: View of the FET-like structure at the end of the first step.

4. その他・特記事項(Others)

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5. 論文・学会発表(Publication/Presentation)

なし。

6. 関連特許(Patent)

なし。