

## Bulletin of the American Physical Society

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#### Session E13: Non-centro Symmetric Materials Based Topological Superconductivity

8:00 AM–11:00 AM, Tuesday, March 6, 2018

LACC Room: 304A

Sponsoring Unit: DMP

Chair: Ching-Kai Chiu, University of Maryland

#### **Abstract: E13.00002 : Molecular Beam Epitaxy Growth and Properties of Strained Superconducting Half-Heusler LaPtBi Film, a Candidate Topological Superconductor\***

8:36 AM–8:48 AM

← Abstract →

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LaPtBi is a Half-Heusler compound which is recently predicted to exhibit multi-functionalities: the superconductivity and topological edge states, namely topological superconductor. LaPtBi has been shown to superconduct in the bulk. However, and importantly, its topological property can only be stimulated by applying substantial uniaxial strain. In this talk, we report the observation of superconductivity in MBE grown epitaxial non-centrosymmetric LaPtBi film on MgO (001). Transport measurement shows  $T_{c(\text{onset})}$  at 0.7 K and an upper critical field ( $B_{c2}(0)$ ) of 2.1 T. By optimizing the growth parameters, a compressive uniaxial strain of 17% was introduced into the film. In such a strained LaPtBi film, the predicted topological non-trivial gap at  $\Gamma$  point is expected to emerge. Characterization of these strained films, including ARPES, will be presented. The realization of superconducting phase in the strained LaPtBi films is an important step, as a topological superconductor, to seek other predicted exotic properties such as Majorana.

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