

# 中央研究院數學研究所

Institute of Mathematics, Academia Sinica

## Taipei Postdoc Seminar

**Speaker** : 官彥良 Yen-Liang Kuan (National Center for Theoretical Sciences)

**Title** : The Mordell-Weil theorem for  $t$ -modules

**Abstract** :

For each positive characteristic multiple zeta value (defined by Thakur)  $\zeta_A(\mathfrak{s})$ , Chang-Papanikolas-Yu constructed the  $t$ -module  $E_{\mathfrak{s}}$  defined over  $A$  and integral points  $\mathbf{v}_{\mathfrak{s}}, \mathbf{u}_{\mathfrak{s}} \in E_{\mathfrak{s}}(A)$ . They proved that  $\zeta_A(\mathfrak{s})$  is Eulerian (resp. zeta-like) if and only if  $\mathbf{v}_{\mathfrak{s}}$  is an  $\mathbb{F}_q[t]$ -torsion point in  $E_{\mathfrak{s}}(A)$  (resp.  $\mathbf{v}_{\mathfrak{s}}, \mathbf{u}_{\mathfrak{s}}$  are  $\mathbb{F}_q[t]$ -linearly dependent in  $E_{\mathfrak{s}}(A)$ ).

In this talk, we are interested in the structure theory of the  $t$ -module  $E_{\mathfrak{s}}(A)$ . Poonen proved an analogue for Drinfeld modules of the Mordell-Weil theorem. We shall generalize his results to the case of specific families of  $t$ -modules. In particular, we prove that the  $t$ -module  $E_{\mathfrak{s}}(A)$  is the direct sum of its torsion submodule, which is finite, with a free  $\mathbb{F}_q[t]$ -module of rank  $\aleph_0$ .

**Time** : 11:00 - 12:30, Wednesday, May 27, 2020

**Venue** : Room 202, Astro-Math. Buidling (NTU Campus)

**Organizer** : Sheng-Fu Chiu (Academia Sinica), Jia-Yuan Dai (National Center for Theoretical Sciences)

[https://www.math.sinica.edu.tw/www/file\\_upload/conference/2016TPS/index.html](https://www.math.sinica.edu.tw/www/file_upload/conference/2016TPS/index.html)

◆Lunch Box Sign Up and Registration: <https://reurl.cc/e5jjX7>

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