

# 國立交通大學應用數學系

## 學術演講公告

主講人：孫嘉梁 博士(中研院數學所)

講題：Unlikely Intersection between Additive and  
Multiplicative structures

時間：109 年 11 月 17 日(星期二) 下午 14:00 –15:00

地點：(光復校區) 科學一館 223 室

茶會：當天下午 13:30 (科學一館 205 室)

### Abstract

We introduce the philosophy of Unlikely Intersection and give some classical examples, including the well-known finiteness theorem on unit equations. Then we example how to invent a new problem from this well-known theorem. Finally, we discuss my result on this new problem, stated as follows. Let  $K$  be a finitely generated field extension over  $\mathbb{F}_p$ , and  $M$  be a finitely generated  $\mathbb{F}_p[\phi]$ -submodule of  $K$  with infinitely many elements, where  $\phi$  is the  $p$ -Frobenius map. Under the assumption that there is some natural number  $n_0$  such that  $M \cap K^{p^{n_0}} \subset \phi(M)$ , we fully characterize those positive-dimensional subgroups  $G$  of a split algebraic torus naturally embedded into the affine space with of the same dimension with the property that the set of points on  $G$  with coordinates in  $M$  is equal to the orbit under  $\phi$  of the set of points on a proper subvariety of  $G$  with coordinates in  $M$ .

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