

國立中正大學數學系  
暨應用數學碩士班、統計科學碩士班  
學術演講

**Explicit bound on collective strength of regular sequences of three  
homogeneous polynomials**

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**Abstract**

In 'Small subalgebras of polynomial rings and Stillman's conjecture' by Ananyan and Hochster, it is shown that if  $f_1, \dots, f_r \in k[x_1, \dots, x_n]$  are homogeneous polynomial of degree  $d$ , then there exists a bound  $N = N(r, d)$  where: if the collective strength of  $f_1, \dots, f_r \geq N$ , then  $f_1, \dots, f_r$  are regular sequence. In my research, I work on the case where  $r = 3$  and examine how  $N(3, d)$  changes with different  $d$ . i.e. Does  $N(3, d)$  go to infinity as  $d \rightarrow \infty$ ? The first interesting case is when  $r = 3$ , where we show  $N(3, 2) = 3$  and  $N(3, 3) > 3$ . We are continuing to explore the bound on collective strength of  $f_1, f_2, f_3$  in the case when  $d$  goes large.

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地點: 本校數學館 527 教室 (嘉義縣民雄鄉大學路 168 號)

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