

# 國立中山大學應用數學系

## 學術演講

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講題：Quantum Dimensions and Fusion Rules of  
the  $Z_3$ -orbifold code VOA  $V^{\tau}_{C \times D}$

時間：2015/3/19 (星期四) 16:10 ~ 17:00

地點：理學院四樓理 SC 4009-1 室

### 摘要

In this talk, I will first briefly introduce the concept of vertex operator algebras (VOAs) and, in particular the moonshine VOA. The moonshine VOA is the most famous VOA and its automorphism group is the Monster group, the largest finite simple sporadic group. This VOA is constructed by extending a  $Z_2$ -orbifold VOA. Next, I will compute the quantum dimensions and fusion rules of the  $Z_3$ -orbifold VOA  $V^{\tau}_{C \times D}$  associate to  $F_4$ -codes  $C$ ,  $Z_3$ -codes  $D$  and an order 3 automorphism  $\tau$ . As an application, I will construct certain 3-local subgroups of the Monster group inside the automorphism groups of  $V^{\tau}_{C \times D}$  for some specific codes  $C$  and  $D$ . It leads to the  $Z_3$  construction of the moonshine VOA. This is joint work with C.H. Lam.

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