# 國立中山大學應用數學系
# 學術演講

講　　者：Professor Gergő Nagy
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講　　題：Maps on structures of operators preserving norms of linear combinations

時　　間：2015/10/22（星期四）15：10～16：00

地　　點：理學院四樓理 SC 4009-1 室

## 摘要

In the first part of the talk, we present known results concerning the structure of isometries on certain metric spaces of linear operators. Some of these theorems are classical and others concerning the unitary group and the special unitary group on a Hilbert space are quite recent. The second part of the presentation is devoted to our related results. In one of these theorems, we describe the general form of the isometries on self-adjoint traceless matrices with respect to the Schatten $p$-norms. As an application, we show how the corresponding description can be employed to determine the structure of the isometries of the special unitary group on a finite dimensional Hilbert space. Our other results to be presented concern the general form of maps on certain sets of Hilbert space operators preserving the $p$-norm of linear combinations with given nonzero real coefficients. These sets are the collection of all positive $p$th Schatten-class operators and its subset consisting of the normalized elements in it. The latter results generalize, extend and unify several theorems obtained formerly.

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