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LINEAR MAPS BETWEEN OPERATOR ALGEBRAS PRESERVING CERTAIN SPECTRAL FUNCTIONS

XIAOHONG CAO* AND SHIZHAO CHEN

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ABSTRACT. Let H be an infinite dimensional complex Hilbert space and let ϕ be a surjective linear map on $B(H)$ with $\phi(I) - I \in \mathcal{K}(H)$, where $\mathcal{K}(H)$ denotes the closed ideal of all compact operators on H . If ϕ preserves the set of upper semi-Weyl operators and the set of all normal eigenvalues in both directions, then ϕ is an automorphism of the algebra $B(H)$. Also the relation between the linear maps preserving the set of upper semi-Weyl operators and the linear maps preserving the set of left invertible operators is considered.

COLLEGE OF MATHEMATICS AND INFORMATION SCIENCE, SHAANXI NORMAL UNIVERSITY,
XI'AN, 710062, PEOPLE'S REPUBLIC OF CHINA.

E-mail address: xiaohongcao@snnu.edu.cn

E-mail address: cschw4563876@yahoo.cn

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* Corresponding author.

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