



The Hong Kong University of Science and Technology

Department of Mathematics

PhD THESIS EXAMINATION

On the Quantum Greedy Bases and Quantum Theta Bases of Quantum Cluster Algebras

By

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ABSTRACT

We study the positivity of different bases for the quantum cluster algebras. We prove the positivity of quantum greedy bases for finite and affine types, provide a new criterion and a necessary condition for the positivity of quantum greedy bases. Also, we generalize the definition of quantum theta bases, then build an explicit correspondence between quantum theta bases and quantum greedy bases for finite types. As a consequence, we also prove the positivity of quantum theta bases of finite types. Finally, we apply this result to the study of the cluster nature on quantum groups.

Date : 27 June 2024, Thursday

Time : 1:00 pm

Venue : Room 4472 (Lifts 25-26)

Thesis Examination Committee:

Chairman : Prof. Sen YANG, PHYS/HKUST
Thesis Supervisor : Prof. Ivan IP, MATH/HKUST
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(Open to all faculty and students)

The student's thesis is now being displayed on the reception counter in the General Administration Office (Room 3461).