The Hong Kong University of Science and Technology

Department of Mathematics

<u>MPhil THESIS EXAMINATION</u>

Bijections between pipe dreams, plane partitions, and their symplectic variations

By

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<u>ABSTRACT</u>

This thesis first studies bijections between pipe dreams and a variety of other objects: for example, certain north-east chains, north-east fillings, bumpless pipe dreams, and reverse plane partitions. This expository material surveys the main results from Serrano-Stump and Gao-Huang. Then we study symplectic variations of these constructions, proving some new results. Specifically, we investigate bijections between involution pipe dreams, certain reflected north-east chains and fillings, and shifted reverse plane partitions. We also study a generalization of bumpless pipe dreams for involutions. We give a conjectural bijection between these objects and involution pipe dreams, extending the correspondence of Gao-Huang.

Date :	**29 July 2022, Friday**
Time :	**2:30 p.m.**
Venue :	**Online via ZOOM**
	ID: 991 4649 8946 (Passcode: 062044)
	https://hkust.zoom.us/j/99146498946

<u>*Thesis Examination Committee*</u>

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Thesis Supervisor	:	**Prof. Eric Paul MARBERG, MATH/HKUST**
Member	:	**Prof. Quoc HO, MATH/HKUST**

(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).