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**The Hong Kong University of Science and Technology**

**Department of Mathematics**

**Seminar on Pure Mathematics**

**The Quantum Yang-Baxter Conditions:  
The Fundamental Relations behind  
the Nambu-Goldstone Theorem**

by

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***The Open University of Hong Kong***

**Abstract**

We demonstrate that for systems experiencing spontaneous (internal) symmetry breaking, the Quantum Yang Baxter Equations (QYBE) can be interpreted as the superposition of all the possible vacuum expectation values of the order parameter. In this way, the Nambu-Goldstone theorem is just a natural consequence of the constraints imposed by the relations (QYBE). Then we can conclude that the dynamic describing the interaction of pairs of Nambu-Goldstone bosons is governed by QYBE. This unsuspected connection between these two concepts, solves in a natural way the important problem of counting the Nambu-Goldstone bosons as well as the unusual observed dispersion relations in some situations.

**Date: Friday, 9 August 2019**

**Time: 3:00p.m. - 4:00p.m.**

**Venue: Room 4504, Academic Building  
(near Lifts 25-26), HKUST**

***All are welcome!***