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The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Pure Mathematics

**Some conjectures about q -Chebyshev polynomials
and affine symmetric groups**

By

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Abstract

The Chebyshev polynomials of the first and second kind are certain families of orthogonal polynomials which are important in approximation theory. A few years ago, Cigler introduced certain q -analogs of Chebyshev polynomials with several nice properties. Surprisingly, Cigler's q -Chebyshev polynomials of the first kind also arise as an analog of the Poincaré series for affine symmetric groups. Computations suggest that Cigler's q -Chebyshev polynomials of the second kind can also be realised from a Coxeter-theoretic construction in a similar way. More generally, it appears that one can attach to any affine symmetric group a family of polynomials $T_{\{m,n\}}$ which nice positivity properties generalising Cigler's q -analogs. This talk will give an accessible overview to these topics and survey some related conjectures supported by computations.

Date: Wednesday, 14 March 2018

Time: 5:00p.m. - 6:00p.m.

**Venue: Room 2126D, Academic Building
(near Lifts 19), HKUST**

All are welcome!

**This is the first of series of seminar on Pure Mathematics which will be organized on alternating Wednesday from 17:00 to 18:00 during this semester. The next one will be on 21 March.*