

B I - C O M A T H E M A T I C S C O L L O Q U I U M

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"Fair Division: Pouring Wine and Cutting Cakes"

Monday, September 26, 2016

Talk at 4:00 – H109

Tea at 3:30 – KINSC Math Lounge, H208

Abstract:

Cake cutting is a metaphor for more practical fair division problems. As in life, we are concerned with both efficiency and equity---how to define them, how to achieve them, and sometimes, how to choose between them. The cake metaphor allows us to address these issues with the rigor of mathematical proof.

We'll review some old and new results on cake cutting. We'll say what it means for a division to be "envy-free," and show, using topology, how that standard can be achieved.

But the highlight is a new procedure for pouring wine. This subject started, for the speaker, with a procedure introduced by Selfridge and Conway in 1960, for dividing a bottle of wine among three very jealous mathematicians. We have now a brand-new procedure by Aziz and Mackenzie for dividing wine among four or more claimants! Maybe we can even demonstrate it.