

Thursday, November 20, 2008
3:00–3:50 p.m.
Harrelson 330

Can you say something about solutions without finding them?

Hoon Hong

One of main activities in math is “solving” equations. But, why do we solve equations? In most cases, it is because we want to know something (properties) about the solutions.

Of course, the usual way is to find the solutions first (which is usually very hard) and then inspect them to read off the desired properties (which is usually very easy). But this procedure is sort of “wasteful” since the explicit solutions contain much more additional (and undesired) information. As an analogy, suppose that you just want to get a memory card. **Would you buy an expensive laptop computer first and then take out a memory card from it and throw away the laptop?!**

Naturally a question arises: Can we determine desired properties of solutions **without finding the solutions?**

This kind of question has been asked and is being asked by great mathematicians of the past and the present (and will be asked... by you). In this talk, we will go over a few beautiful results due to great mathematicians of the past such as Sylvester, Sturm, Hermite, Bezout, Cayley, Macaulay, Hilbert, etc. as time allows.

NCSU Society for Undergraduate Mathematics

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Mathematics and pizza!