



ALGEBRA SEMINAR TALK



FRIDAY, MARCH 27, 2009

GUILLERMO MANTILLA SOLER

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3:30 P.M. – Middlesex College Room 106

“Integral trace forms associated to cubic extensions”

Abstract: Given a nonzero integer d we know, by Hermite's Theorem, that there exist only finitely many cubic number fields of discriminant d . A natural question is, how to refine the discriminant in such way that we can tell, when two of these fields are isomorphic. Here we consider a certain binary quadratic form q_K associated with our cubic extension, and we show that if d is a positive fundamental discriminant, then the isomorphism class of q_K , as a quadratic form over \mathbf{Z}^2 , gives such a refinement.



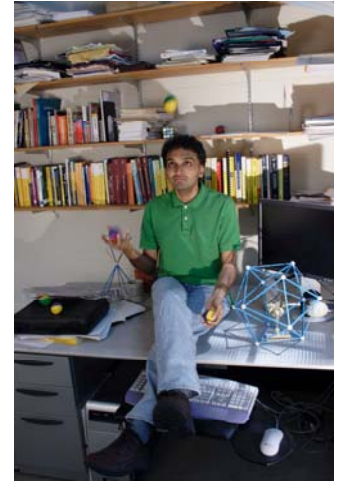
Carl Friedrich Gauss



Guillermo Mantilla



Manjul Bhargava



Kiran Kedlaya

We have a dilemma. Here is this amazing, inspiring week filled with the wonderful lectures of Fred Cohen and Adam Sikora, and which followed Tony Bahri's great "appetizer" toric lecture last week. How to complete this week in the proper style? We have found an answer! Guillermo Mantilla Soler's recognition of cubic number fields is the perfect finish to this inspiring week, in the footsteps of none other than Carl Friedrich Gauss. New, modern and exciting stuff which builds on classic mathematics and has become instantly classic itself.



ALL ARE WELCOME! ☺