Berlin Mathematical School

BMS Kovalevskaya Colloquium

Friday 25 January 2013 at 14:15
Tea & Cookies starting at 13:00

BMS Loft, Urania, An der Urania 17, 10787 Berlin

Özlem Imamoglu
(ETH Zürich)

On Klein's *j*-invariant

Klein's *j*-invariant is an analytic function in the upper half plane which is invariant under the modular group SL(2,**Z**), making it a basic example of a modular function.

It has many remarkable properties. It determines the isomorphism classes of elliptic curves. The beautiful theory of complex multiplication implies that for *z* an imaginary quadratic irrational, the value of $j(z)$, called singular modulus, is an algebraic integer. The singular moduli have been studied extensively since the 19th century and are of fundamental importance in number theory. Furthermore, all of the Fourier coefficients of the *j*-invariant are integers and it has been proven that they are related to the representations of the monster group, a sporadic simple group.

In her talk, Imamoglu will give an overview of some of the old and new results about this remarkable function.

Özlem Imamoglu is a titular professor at ETH Zürich and specializes in number theory. She graduated with a BA in Electrical Engineering in Ankara, Turkey and gained her PhD at the University of California, Santa Cruz. Before she moved to Zurich in 2004, she was an associate professor at the University of California, Santa Barbara. Born in Turkey, Imamoglu is also the mother of two children.

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