M a t h e m a t i c s   C o l l o q u i u m

—————— of the University of Luxembourg ——————

in cooperation with the
Luxembourg Mathematical Society

Thursday 18 June 2015, at 5 pm　　　　**Campus Kirchberg, Room A02**

Prof. Bas Edixhoven

Universiteit Leiden, The Netherlands

Bas Edixhoven studied mathematics and physics in Utrecht with the original aim of becoming a theoretical physicist. But he didn't like experimentation and the way mathematics was handled in the physics courses. On the other hand, he got acquainted with other subjects like Galois theory that he liked better. In 1985 he finished his mathematics studies with a thesis on elliptic curves and modular curves, the tools Andrew Wiles was going to use in the proof of Fermat's Last Theorem in 1993. In 1989 Edixhoven received his PhD from the University of Utrecht in the area of arithmetic geometry, a combination of algebra, number theory and geometry. He had become a specialist on modular curves and was attracted to Berkeley for two years as an assistant professor, before taking up a research position in Utrecht for one year. On invitation he applied for a full professorship in Rennes (France), which he obtained. Ten years later he returned to the Netherlands to become a full professor in geometry at the University of Leiden. His research area now also comprises complexity questions for computational problems. An example result obtained in collaboration with Jean-Marc Couveignes, Robin de Jong, Franz Merkl and Peter Bruin is that in even dimensions, the number of lattice points with a given distance from the origin can be computed in polynomial time if the square of the distance is given in factorised form.

Some elliptic curves from the real world

Elliptic curves are very important in my work in number theory and arithmetic geometry, and so it makes me happy to encounter them as well in other areas of mathematics, and even outside mathematics.

In this non-technical lecture I will give a few examples of elliptic curves showing up in plane geometry (Poncelet), in Escher's "Print Gallery" (de Smit and Lenstra), in classical mechanics (Euler), and in the Guggenheim museum in Bilbao (minimal art by Richard Serra). The first three examples are well known, but the last one appears to be new.

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