**University of Antwerp “Research by pupils”**

10:00-11:00 IREM Lille: *Nicolas Vanlancker (MATh.en.JEANS),***Acting, for one academic year, as mathematical researcher**

25 years ago the MATh.en.JEANS (Association pour une Méthode d'Apprentissage des Théories mathématiques en Jumelant des Établissements pour une Approche Nouvelle du Savoir) was created. In this frame, as companion of teachers, academics researchers initiate young pupils, during one academic year, to the craft of doing research.

11:15-12:15 FIsme Utrecht: *­Sonia Palha****,*Discussing and reasoning about the integral function in upper secondary school**

It is well known from research that being fluent in applying integration rules and calculating areas is not enough to develop a rich concept of the integral function, which can be used to solve problems or as basis for further understanding of integration.  Learning activities like qualitative reasoning, relating multiple representations and connecting different meanings of the integral function are activities with the potential to do so. Of course, the question is: to what extend are such learning activities part of the regular classrooms and present in textbooks. Another question is: if students are engaged in tasks that pretend to foster these activities, what kind of discussions and reasoning do the tasks provoke? And what are the difficulties faced by the students? In this workshop we discuss these questions. We present examples of learning activities for 11th grade that were developed in order to foster students reasoning about the integral function and we present and discuss the way they have been used by the students. We use data from a teaching experiment with 57 students from three classrooms in different secondary schools in the Netherlands.

12:30 small lunch in Agora Caffee

13:45-14:45 Uitwiskeling Flanders: *Hilde Eggermont, Pedro Tytgat*, **At right angles**

****In our classes, we invariably use the Euclidean distance, i.e. in a straight line. However, this isn’t always the most sensible way to measure distance. In a city consisting of a rectangular grid of streets, for example, the distance between two points can better be measured as the sum of distances along those perpendicular streets.

Let’s call this distance the grid distance. We may now wonder what the set of all points at a fixed grid distance from a given centre point looks like. We’ll call it a grid circle, though its shape may bear little resemblance to the Euclidean circles we’ve always known. In a similar way, we can investigate the shape of *grid perpendicular bisectors*, *grid conics*, … and even try to find the equations describing them.

In this workshop, you can perform part of the investigation our pupils did. We will then show you some of their discoveries, using the reports they wrote. Finally, we’ll evaluate this pupil research project.

15:00-16:00 GEM Louvain-la-Neuve: *Thérèse Gilbert,* **Students construct a multiplication machine**

It is easy to make an addition machine. But how to construct a multiplication machine? This is a research project proposed to future mathematics teachers. It forms an occasion to think and to construct something.

16:15-17:15 Bergische Universität Wuppertal: *Mechtild Köhler*, *Nina Friedrich*, **MIKADU - a project for the advancement of mathematically gifted children**

In this presentation, we want to give you some information about our project MIKADU, running at the University of Wuppertal since March 2011. In regular meetings 15 selected mathematically gifted children deal with special mathematical questions beyond the school-lessons. We want to give you two examples of "research" done by those pupils.

17:15   Some conclusions and decision of the theme for next year

17:30   Short walk in the historical centre of Antwerp, with excellent guides

18:30   Dinner at the Peruvian restaurant **‘El Sabor Andino’**

21:00-03:00    Dancing night, Antwerp by night (optional)