

**19 March 2011, Saarbruecken,  
Deutschherrenkapelle,  
Funeral Service for Dr. Erica Melis**

Professor Dr. Wolfgang Wahlster

Dear Mourners,

My name is Wolfgang Wahlster. I am the Director and CEO of the German Research Center for Artificial Intelligence (DFKI) where Dr. Erica Melis worked for the last 10 years as a Principal Researcher and Research Fellow. In Erica Melis we have lost one of our top scientists. She was a full-blooded computer scientist and worked passionately on her projects at the intersection of artificial intelligence and learning technologies.

She studied mathematics at the renowned Humboldt University of Berlin and obtained her doctorate in the interdisciplinary field of logic and philosophy of science.

At Saarland University, she played a defining role in our special collaborative research area "Resource-adaptive Cognitive Processes" funded by the German Research Foundation (DFG) for more than 10 years. There, she worked in the field of automated theorem proving, especially on knowledge-based proof planning. She made fundamental contributions integrating machine-understandable knowledge structures from mathematicians into automated deduction systems in

order to decide what type of proof – e.g. proof by contradiction or by induction - is most promising for a given mathematical problem.

The use of meta-inferences, proof planning and analogies between proof schemata are seminal scientific contributions of Erica Melis.

Early on, she worked together with top international scientists and closely collaborated, e.g. in the area of proof planning, with Alan Bundy from the University of Edinburgh, one of the most important scientists in the field of automated deduction, and spent one year with his group in Scotland.

In 2000, she obtained her post-doctorate degree (Habilitation) at Saarland University. I still remember this time in detail as one of members of the thesis review committee. In the papers for her post-doctorate degree, Erica addressed the area of user modelling for tutoring systems, or more precisely explicit the modelling of knowledge levels, misconceptions and comprehension problems of mathematics pupils. Here, she combined the areas of artificial intelligence, mathematics and learning technologies in an interdisciplinary way. Intelligent tutoring systems – and they are a large part of her life's work – are capable of individually adapting to the learner because they also analyse the errors of a student and adapt to her level of knowledge. She formalised these learning models and made them productive for adaptive learning technologies.

Erica was a world-authority in the area of intelligent tutoring systems for mathematics. She collaborated with some of the best minds in the world, e.g. with Professors Jaime Carbonell and Manuela Veloso from the famous Carnegie Mellon University in Pittsburgh, where she also spent more than a year.

Erica Melis obtained over 4 million in external funding for the German Research Center for Artificial Intelligence and more than 3 million in external funding for research projects in the Department of Computer Science at Saarland University by winning grants from the EU, the Federal Ministry of Education and Research (BMBF), and the German Research Foundation (DFG) against tough competition, never enjoying the convenient institutional basic financing – always fighting for soft money. She was torn out right in the middle of her EU project Math-Bridge, which continues to run through 2012. There, European bridge courses are being developed for mathematics. Math-Bridge adapts to the individual learner and motivates her through the personalization of learning content, provides support independently of country and language barriers, and ultimately also contributes to the success of the Bologna process.

In September of last year, I honoured Erica on her 10-year anniversary at the German Research Center for Artificial Intelligence in a ceremony for DFKI employees.. She was the Principal Researcher and headed the research area of

Intelligent Learning Technology with her ActiveMath Group at the competence center for learning technologies (CeLTech).

As scientists, we have the opportunity to let our ideas continue to live through our publications –the next generation of researchers builds on our discoveries. Since 2000, Erica has been published in more than 80 international forums at top conferences and in selective journals - during the last year despite her serious illness. But as a computer scientist and engineer, you immortalize yourself even more through your artefacts, i.e. software systems that are used by thousands of people. This applies to ActiveMath from Erica Melis and her team – now internationally popular software for individualized learning of mathematics – all the way to “a mathematics driver’s license” for students.

Erica was a pioneer of self-paced and adaptive learning of mathematics with the aid of knowledge-based software systems.

In her work, at least an important part of Erica will continue to live.