



Sparkling Science >

# Science linking with School School linking with Science

## Research Project

1.10.2010 – 30.09.2012

## AAS Endurance

A robotic sailing boat to do research on marine mammals

### LEADING INSTITUTION

INNOC – Austrian Society for Innovative Computer Sciences, Vienna

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### SCHOOL INVOLVED

HTL Spengergasse, Vienna

### SCIENTIFIC CO-OPERATION PARTNER

Oregon State University, Newport, USA

### PROJECT WEBSITE

[www.roboat.at](http://www.roboat.at)



## Basic Information about Sparkling Science

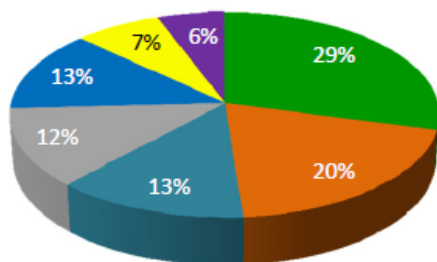
Sparkling Science is a 10-years research program of the Austrian Federal Ministry of Science and Research (BMWRF) that started in 2007 and that applies an innovative policy approach of linking high quality research with pre-university promotion of young scientists.

The specific feature of the program: In so far 209\* projects (113 of them have already been completed) scientists work side by side with students under 18 in numerous different research areas: From archeology to ambient assisted living, from microbiology to migration research, from product development to pollen allergy - more than 250 scientific disciplines are involved in the program.

The students participate in the research process in multiple ways, depending on the working methods applied in the specific projects. They carry out investigations and polls, participate in software and technology development, collect and interpret data together with the researchers and present the results in public as well as in international scientific symposia and conferences.

### Projects by areas of science

- Natural Sciences
- Social Sciences
- Information Technology
- Technology
- Teaching and Learning
- Humanities
- Medicine and Health



### Program Sparkling Science

#### Facts & Figures

as on September 2012

#### Key parameters

Duration of Program: 2007 to 2017

Invitations to tender: to date four invitations to tender

Number of projects: 209 national and international projects

Funding: to date a total of Euro 19 million has been granted

#### Participants

45,000 students

1,000 scientists

1,050 teachers

382 schools and school centres

121 partners from the business and wider community

153 research institutions, including:

42 universities

88 non-university research institutions

9 pedagogic universities

9 universities of applied science

including 36 foreign research institutions

(D, USA, GB, CH, AU, SE, FR, DK, I, PL, ES)

including 29 foreign schools

(I, CH, D, SK, ES, PL, USA, JP, SRB, SI, TR, CM)

#### Further information

[www.sparklingscience.at](http://www.sparklingscience.at)

## One Example out of 209

### AAS Endurance – A robotic sailing boat to do research on marine mammals

The aim of the project was to develop an autonomous sailing boat to act as a maritime research platform for passive-acoustic monitoring (PAM) of marine mammals.

AAS Endurance is a flexible, multi-sensor platform suitable for use in research on a wide range of ecological issues. The system offers a number of significant advantages over previously used autonomous platforms for research on marine mammals, for instance with respect to speed, room for scientific equipment and a continuous supply of energy for long-term missions. On the other hand, use of a sailing boat entails new challenges, such as reliable recognition and avoidance of obstacles as well as energy self-sufficiency, which have been examined in this project.

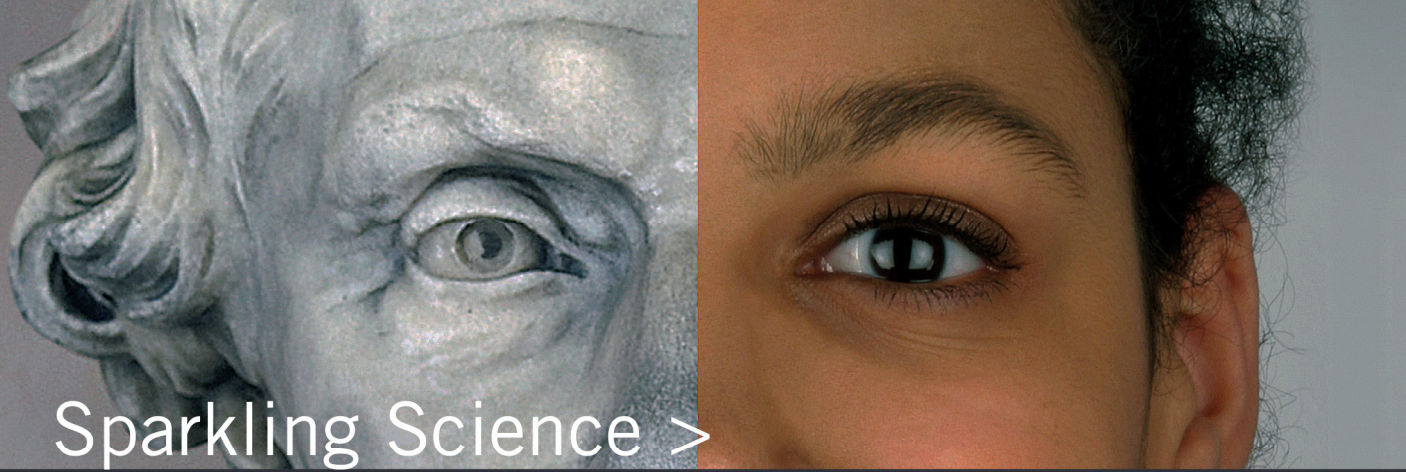
The robotic sailing boat accomplished a several-day research mission in the Baltic Sea. The research team studied the endangered harbour porpoise population in the Kiel Bight and Little Belt. Using an underwater microphone (hydrophone) attached to the boat's keel, the acoustic signals of a number of whales were recorded during the survey, and valuable information was collected on the presence of these animals in the study area. This is the first time that an autonomous sailboat has been successfully deployed as part of a scientific research project.

Pupils from a Higher Technical College have gained extensive insights into an international and multi-disciplinary research project. During field tests by the sea, students were able to work alongside the scientists and experienced first-hand how exciting and varied scientific work is.

The project is supported by

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BMWF<sup>a</sup>

Austrian Federal Ministry of Science  
and Research