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SiROP Awards 2004 with guest speaker Claude Nicollier.

Certificate from an astronaut

Following Nobel laureate Richard Ernst, the students' association SiROP (see box) succeeded in securing the presence this year of Swiss astronaut Claude Nicollier as a distinguished guest speaker and "Certifier". In this year's ceremony, last Friday evening, a dozen students were rewarded for their work in projects, such as "SpiderNet" or "Cholesterol-Inhibitor".

By [Jakob Lindenmeyer](#)

The audience of around 150 filled the Aula at ETH Zurich down to the last seat. Most of those in the audience were students. The lights went out and, for the next hour, Semper's Aula was transformed into a spaceship, which, under the command of astronaut Nicollier, took the audience on a perfectly orchestrated journey into space.

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Swiss astronaut Claude Nicollier at the end of 1999 before the launch of the Discovery space flight. (Photo: NASA) [large](#)

After Nicollier's space presentation, which lasted nearly an hour, SiROP-President Pascal Kaufmann led a still slightly bemused audience elegantly back to the matter that occasioned the evening's event. "It will take a while until we can offer our SiROP projects on space station ISS," regrets Kaufmann, but he



Last Friday evening, astronaut Nicollier spoke about his adventures in space in the Great Hall at ETH. [large](#)

"Research is a never-ending adventure," said astronaut and astrophysicist Claude Nicollier at the opening of his space presentation. "An astronaut is also an adventurer." To be sure, there was danger but there were compensations. Like the 32 sunrises and sunsets experienced in a single day in orbit. Nicollier's pictures of the international space station and distant galaxies were superb.

"The universe is right next door!"

In addition, space was so near—just eight and a half minutes after the launch in Cape Canaveral one was already in orbit. This is possible thanks to the Space Shuttle, a "technical miracle". During the ceremony, Nicollier also voiced his praise for the Apollo mission, which, just eight years after John F. Kennedy's declaration, realised the first moon landing. "An example to us all!" Even though the mission of Apollo 13 did have great problems, the maxim always was, "Failure is not an option!"

promises that the successful SiROP program will be extended next year to include other universities and universities of applied sciences in Switzerland.

SiROP: Research for students

SiROP stands for "Student Research Opportunities Program". The aim of the association is to afford students, on a voluntary basis, early contact with "real" research. The concept was borrowed from one in place at the US Massachusetts Institute of Technology (MIT). For a number of years MIT students have been successfully involved in cutting-edge research during their courses of studies.

A team of motivated students founded SiROP in autumn 2002 as a non-profit organisation and the association was officially recognised as an institution at ETH Zurich in April 2004. Students interested in the program can register at the SiROP-Website ([2](#)) for one of the announced projects, allowing them to gain valuable research experience as well as additional qualifications. A wage is possible, but not compulsory. After the successful conclusion of a research project, each participant receives a certificate marking his or her participation.

Since its inception, and in addition to their compulsory studies, ETH students have fulfilled a total of 5,500 hours of voluntary research work within the framework of SiROP. Over 150 students from nine departments applied for the 91 SiROP projects announced to date. 280 students have put their names down on an "interested" list. At the moment, there are announcements for over 30 projects.

A somewhat shrunken audience stayed for the presentation of



During his fourth mission, on space flight Discovery (STS 103), astronaut Nicollier worked an eight-hour shift repairing and upgrading the Hubble Space Telescope on 23rd December 1999. (Photo: NASA) [large](#)

But in recent years space missions have been somewhat overshadowed by bad luck. The explosions of the Space Shuttles Challenger (1986) and Columbia, the year before last (1), showed that take-offs and landings are particularly dangerous. "A loss ratio of 1/56 poses a too high risk," analyses Nicollier. In order to lower the risk NASA runs on strict discipline and, not least, on the magic formula of "training, training and more training!"

The sky's not the limit

After a two-year moratorium following the Columbia crash, NASA is now planning to send the Space Shuttle into space already next May, not least in order to meet the ambitious timetable of finishing the construction of the international space station ISS by 2010. In the medium term, NASA aims to station astronauts on the moon for a number of weeks or even months sometime between 2015 and 2020. The long-term aim, however, is the manned flights to Mars, which are planned for 2030. Before this, however, a few robots will explore the neighbouring red planet. So space flight will have much to offer in the next few decades. Nicollier used his closing address—and his final transparency—to drive home the

three concluded SiROP projects that followed. Reto Baumann, third semester biochemistry student, synthesised a new class of cholesterol inhibitors at the Laboratory for Organic Chemistry during his last summer semester holidays. Anna Binkowski, a German student from Marburg, worked on the same project. She describes her experience at the ETH laboratory succinctly as "short, intensive and positive" and feels that the experience confirmed her choice of studies as the right one. The seventh-semester electro-technology student Matthias Yazawa worked on the development of a virtual system, "SpiderNet", to analyse the classical conditioning of a virtual spider that avoids hot plates at the University of Zurich's AI laboratory. Yazawa was so taken with this area of research that he has now decided on the subject of his diploma thesis, neuronal networks in robots.

The evening concluded with the ceremonious award of the SiROP certificates. From the hands of the only Swiss astronaut all project participants received a certificate, a work attestation and ... a bottle of red syrup.



Claude Nicollier (right) and SiROP President Pascal Kaufmann (left) bestowing the certificates. (Just visible, at the edge of the picture, the bottle of syrup.) [large](#)

encouraging "take-home message" on the future conquest of outer space: "No Limits!"

Enriching experience abroad

The audience is enraptured. The long-lasting applause serves to bring one back to earth. The students find Nicollier's career advice based on his own experiences especially helpful. "Look for your future workplace not just here in Switzerland, but all over the world—and sometimes even beyond!" Leaving Switzerland for another country was extremely enriching and one should be open to the option of going abroad, advises the astronaut. "Although afterwards, it is good to return to Switzerland."

[continue ▶](#)

References:

- Claude Nicollier's homepage at NASA: www.jsc.nasa.gov/Bios/htmlbios/nicollie.html
- ETH Life article about SiROP: www.ethlife.ethz.ch/articles/siropdeutsch.html

Footnotes:

- (1) ETH Life article on Space Shuttle Columbia: www.ethlife.ethz.ch/articles/shuttlekatastrophe.html
- (2) SiROP's website: www.sirop.ethz.ch/

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