

**EMBARGOED UNTIL WEDNESDAY,  
DECEMBER 10, 2014, 20:00 CET**



---

**UNIVERSITÄT  
BERN**

Corporate Communication

**ZITATE/QUOTES**

9. Dezember 2014

**Kathrin Altwegg, ROSINA Principal Investigator, University of Bern, Switzerland**

*«I wish Peter Eberhardt, the originator of ROSINA DFMS would have lived to this day. He was truly driving us crazy, asking the impossible, always pushing for more, for better, but the stunning results we get with this instrument shows that this effort was more than worthwhile.»*

*«When almost 12 years ago an Ariane rocket crashed and the launch of Rosetta had to be postponed thus missing the target comet Wirtanen, I was truly disappointed. However, now I think that this was probably a good thing. Churyumov-Gerasimenko is an absolutely intriguing comet, probably the best object which could have happened to the Rosetta mission.»*

*«The very high D/H value in water points to an origin from a very cold place and is proof of very well preserved material from the beginning of the solar system. I'm convinced that our ROSINA instrument is going to reveal many other very interesting scientific results helping to understand the origin of planets, the Earth and finally life.»*

*«I started my career in space research with the Giotto mission almost 30 years ago. The determination of D/H in comet Halley with the ion mass spectrometer was certainly the most important result from this instrument. I still remember the excitement when we got a value which was twice the terrestrial value. I'm a very lucky woman to end my career with another exciting result for D/H in water in a comet helping to unravel the mystery of the relationship between comets and the Earth.»*

*«The fact that Deuterium in the water of comet C-G is more than three times higher than on Earth actually corresponds to my understanding of the early solar system where there was a gradient in Deuterium due to the temperature gradient, having more Deuterium further out than closer in. I also did never fully understand why Kuiper belt comets should have brought terrestrial water as they are located far from the Earth.»*

**Hans Balsiger, Honorary ROSINA Principal Investigator, University of Bern, Switzerland**

*«Wer, wie ich, mehr als 30 Jahre auf dieses Rendez-vous gewartet hat, muss wunschlos zufrieden sein, insbesondere da die Berner Instrumente so gut funktionieren.»*

*«Vor ziemlich genau 30 Jahren begann die Erfolgsgeschichte der europäischen und Berner Kometenforschung mit dem Start der Giotto-Sonde zum Kometen Halley und mit dem ESA Langzeit-Wissenschaftsprogramm, das als eine der vier Eckpfeiler-Missionen die heutige Rosetta-Mission enthielt.»*

*«Als Weltraumforscher muss man einen langen Atem haben. Hier hat sich dies mehr als gelohnt. Ohne die Universität Bern und den Schweizerischen Nationalfonds wäre uns allerdings der Atem ausgegangen, hätten sie nicht unsere ausgezeichneten Mitarbeitenden, Studenten und Doktoranden über die lange Zeit unterstützt.»*

*«Der Erfolg hat viele Väter aber auch viele Mütter, Töchter und Söhne!»*

**Akiva Bar-Nun, ROSINA Associated Scientist, University of Tel-Aviv, Israel**

*«Of each glass of water you drink, about one third was once in a comet.»*

**Jean-Jacques Berthelier, ROSINA Lead-Investigator, Laboratoire Atmosphères, Milieux, Observations Spatiales, France**

*«First of all deepest congratulations and thanks to Kathrin and the whole Bern team to have kept alive the ROSINA 'momentum', both at instrument and science levels, during this very long 10 year cruise. No doubt, their efforts allowed to produce in a matter of a few weeks a major scientific result. As an experimenter, I must also testify of the amazing quality of the very first DFMS (and also COPS!) measurements and of the efficiency of the organization, data processing and scientific evaluation that appear to me a rather unique case among previous space missions in which I took part in the past.»*

*«Even not being a specialist in the field of isotopes, I am nevertheless awaiting with much expectation the D/H observations that will follow both from water, with possibly different sources in the nucleus, and, may be, from other species such as methane, as well, of course, as new accurate isotopic composition determined for other species.»*

**Stephen Fuselier, ROSINA Lead Investigator; Myrtha Hässig, former ROSINA/DFMS PhD student, now ROSINA Post-Doc, Southwest Research Institute, USA**

*«Almost 20 years ago, the ROSINA team designed the outstanding instrument 'DFMS' to measure the isotopic ratios of elements in the coma of a comet and especially the D/H ratio. After 20 years, the hard work of countless individuals at a number of institutions in Europe and the United States is beginning to pay off. These first results represent the beginning of what is proving to be a rich data set that will change our understanding of comets.»*

**Axel Korth, ROSINA Co-Investigator, Max-Planck-Institut für Sonnensystemforschung, Deutschland**

*«Ich bin der festen Überzeugung, dass das Wasser auf der Erde durch Einschläge von vielen Kleinplaneten aus dem Asteroiden-Gürtel und Kometen aus dem Kuiper-Belt gekommen ist. Wir werden das richtige D/H-Verhältnis finden, wenn wir nur genügend kleine Körper bzw. Kometen untersuchen. Auf zu den Kleinplaneten!»*

**Olivier Mouis, ROSINA Associated Scientist, Université de Franche-Comté, France**

*«This is one of the most fundamental results that will be acquired by the Rosetta spacecraft during its mission.»*

*«This measurement shows that comets cannot be the unique source of volatiles delivered to the terrestrial planets.»*

**Eddy Neefs, Electronic engineer for ROSINA/DFMS, Belgian Institute for Space Aeronomy, Belgium**

*«The last few months Rosetta has given me a few of the most beautiful moments in my career as a space engineer. Waking up after a long travel and intensive cold nap, going in an orbit around such a small object so far from home, placing a lander on that comet, ... It is exciting to be part of this mission. But, more importantly, seeing that our own instrument, Rosina, DFMS, is in great shape, giving exciting results, is even more heart-warming. Knowing that all our efforts were not for nothing, realizing that the hardware that went through our hands is performing as expected million kilometers from here, witnessing how scientists get the best out of it to learn on our own origin, ... really wonderful.»*

**Daniel Neuenschwander, Head Swiss Space Office, Staatssekretariat für Bildung, Forschung und Innovation, Schweiz**

*«The comprehensive mission that is Rosetta continues to reinforce the successes which can be achieved through close collaboration, bringing together teams from all over the world sharing a common ambition and a common goal. The unique role of ESA and visionary scientists, in bringing together and enabling experts at the highest level to push the frontiers of knowledge ever further, is highlighted. We are proud of the early and ongoing efforts invested in the ROSINA instrument under the lead of the University of Bern. The team's dedication continues to lead to visible results in the mission, advancing cutting-edge research in a spectacular way. The close and successful cooperation between research institutes and industry has been demonstrated again with this ESA mission and especially the exceptional Swiss-led instrument. Forza Rosetta, Forza ESA!»*

**Tobias C. Owen, ROSINA Associated Scientist, University of Hawaii, USA**

*«Before the measurement of deuterium in the water of comet CG, we thought that impacts by comets with similar orbits could explain the origin of the oceans. Now we know that such comets can carry water that is fundamentally different from ours. We must broaden our search!»*

**Henri Rème, ROSINA Lead-Investigator, Institut de Recherche en Astrophysique et Planétologie**

*«Le rapport D/H trouvé montre que certaines comètes ont des rapports D/H nettement supérieurs au rapport D/H des océans terrestres. Ceci ne remet pas en cause la possibilité que l'eau de la Terre vienne en grande partie de comètes. Cette eau a été apportée à la Terre il y a environ 4,5 milliards d'années et à ce moment là les comètes proches de la Terre pouvaient avoir un rapport D/H comme celui des océans terrestres.»*

**Martin Rubin, ROSINA Co-Investigator, University of Bern, Switzerland**

*«A great international team worked hard over many years to make this D/H measurement possible. It is exciting to see it finally coming through!»*