Poster 189

M. Hilchenbach, J. Kissel, R. Schulz*, Y. Langevin, C. Briois, A. Koch, J. Silén, D. Baklouti, A. Bardyn, H.Cottin, C. Engrand, H. Fischer, N. Fray, A. Glasmachers, E. Grün, G. Haerendel, H. Henkel, H. Höfner, K. Hornung, E.K. Jessberger, H. Lehto, K. Lehto, N. Ligier, P. Martin, S. Merouane, P. Modica, F.R. Orthous Daunay, J. Paquette, F. Raulin, L. Le Roy, J. Rynö, S. Siljeström, W. Steiger, O. Stenzel, T. Stephan, L. Thirkell, R. Thomas, K. Torkar, K. Varmuza, K. P. Wanczek, B. Zaprudin:

DPS 48 / EPSC 11 Meeting, American Astronomical Society, 16 - 21 Oct 2016, Pasadena, CA, USA
https://aas.org/meetings/dps48

ROSETTA/COSIMA at comet 67P/Churyumov-Gerasimenko - 2 years of in-situ dust analysis.

Abstract book, no. **116.05**, p. 27; https://aas.org/files/dps-epsc-abstract-book-final.pdf

116.05 – ROSETTA/COSIMA at comet 67P/Churyumov-Gerasimenko – 2 years of in-situ dust analysis

In August 2014 the ROSETTA spacecraft rendezvoused with comet 67P/Churyumov-Gerasimenko and escorted it for more than 2 years along its orbit around the Sun from 4 AU preperihelion to 4 AU postperihelion. During this time the COSIMA instrument (COmetary Secondary Ion Mass Analyser) onboard ROSETTA collected more than 25,000 dust particles in the vicinity of the comet nucleus. All these particles were collected on a number of specially designed metal target plates which were regularly imaged with a microscope (14 μm pixel/pixel resolution, 14mm x 14mm FOV) enabling the analysis of their individual morphologies, certain physical properties, e.g. tensile strength, albedo, as well as the overall flux and size distribution of the dust entering the COSIMA instrument. The images were also used to choose which of the particles shall go through compositional measurements with the time-of-flight mass spectrometer (sometimes repeated at a later time). All these investigations were done over 2 years. This allows to study the compositional and morphological differences of the particles collected at the various sections of the pre- and postperihelion orbit, the evolution of the morphology of the particles on the target plate with time, and the search for spatial heterogeneity of the composition within a particle by taking mass spectra at different locations on the same particle. An overview will be given on the available data and the results obtained so far in view to the analysis of dust composition and morphology, as well as dust flux and size distribution along the orbit.

Author(s): Rita Schulz4, Martin Hilchenbach9, Jochen Kissel9, Yves Langevin2, Christelle Briois1, Andreas Koch22, Johan Silen5, Donia Baklouti2, Anais Bardyn1, Herve' Cottin7, Cecile Engrand3, Henning Fischer9, Nicolas Fray7, Albrecht Glasmachers17, Eberhard Gruen6, Gerhard Haerendel8, Hartmut Henkel22, Hervig Höfner8, Klaus Hornung15, Elmar Jessberger16, Harry J. Lehto20, Kirsi Letho20, Nicolas Ligier2, Sihane Merouane9, Francois-Regis Orthous-Daunay13, John Paquette9, F Raulin7, Léna Le Roy18, Jouni Rynö5, Sandra Siljeström11, Wolfgang Steiger10, Oliver Stenzel9, Thomas Stephan19, Laurent Thirkell1, Roger Thomas1, Klaus Torkar12, Kurt Varmuza21, Karl-Peter Wanczek14, Boris Zaprudin20

Institution(s): *1. CNRS, 2. CNRS, 3. CSNSM, 4. European Space Agency, 5. FMI, 6. LASP Univ. Colorado, 7. LISA, 8. MPE, 9. MPS, 10. RC Seibersdorf Research GmbH, 11. SP Technical Research Institute of Sweden, 12. Space Research Institute, 13. Univ. Grenoble Alpes, 14. Universität Bremen, 15. Universität der Bundeswehr , 16. Universität Münster, 17. Universität Wuppertal, 18. University of Bern, 19. University of Chicago, 20. University of Turku, 21. Vienna University of Technology, 22. Von Hörner & Sulger*