



AMDL Srl  
Flight Segment  
Via di Grotte Portella 6/8  
Frascati, 00044  
Italy

amdlspace@gmail.com  
Phone: +390694293227  
Mobile: +39.338.9699.199  
Fax: +39.0694.293.228  
Website: www.amdl.biz

## Andrea Maria Di Lellis

### Education

High School: Classic Lyceum – G. Cesare, Rome.

Military, Officer – Cesano, Rome

University: Physics, La Sapienza - Rome 18 /12/1987, 110/110 Cum Laude

### Thesis

Particles Imaging by Micro Channel Plates

### Research Experience

Co-I [ESA Cluster 1 - CIS](#): Cis-2 4 x DPU Design & On-Board S/W<sup>(2)</sup>.

Co-I [ESA Cluster 2 - CIS](#): Cis-2 4 x DPU Design & On-Board S/W<sup>(1)</sup>.

Co-I [Soviet Union Mars-96 - PFS](#): 1 x FFT DPU Design & On-Board S/W<sup>(2)</sup>.

Co-I [ESA MarsExpress - PFS](#): 1 x FFT DPU Design & On-Board S/W<sup>(1)</sup>.

Co-I [DARA-NASA Equator-S mission - ESIC](#): 1x DPU Breadboard, On-Board S/W Design, GSE<sup>(2)</sup>.

[NASA DAWN - VIR](#): Vir EGSE, on board compression S/W<sup>(1)</sup>.

[ESA INTEGRAL mission - IBIS experiment](#): EM & QM operation manager<sup>(2)</sup>.

[ESA First mission](#): SPIRE & HIFI ground simulators H/W & S/W control<sup>(3)</sup>.

[ESA Smart-1 mission - AMIE Camera](#): Power Supply & 1x S/C I/F board Designer<sup>(1)</sup>.

Co-I [NASA-ASI Mars Sample Return 2003 Ma FluX](#): Program Manager<sup>(6)</sup>.

Co-I [NASA-ASI Mars Sample Return 2003- MARE-Dose](#): Instrument designer & Experiment Manager<sup>(4)</sup>.

Co-I [ESA-China Republic - Double Star Mission - Ion Composition experiment](#): 1 x On-Board S/W<sup>(1)</sup>.

[ESA BepiCombo](#): SAG's Consultant for Energetic Neutral Atom and for HIPS system.

Co-I [ESA BepiCombo](#): Instrument SERENA designer & program manager<sup>(4)</sup>.

[ESA Solar Orbiter](#): Ion experiment support on board electronic design, and on Neutral Particle analyzer<sup>(5)</sup>.

### Journal Publications

- 1) Mura, S. Orsini, A. Di Lellis, F. Lazzarotto, S. Barabash, S. Livi, K. Torkar, A. Milillo, E. De Angelis: *Onboard data processing and compression for a four-sensor suite: the SERENA experiment..* 09/2013;
- 2) Rosanna Rispoli, Elisabetta De Angelis, Luca Colasanti, Nello Vertolli, Stefano Orsini, Juergen A Scheer, Alessandro Mura, Anna Milillo, Peter Wurz, Stefano Selci, Andrea Maria Di Lellis, Roberto

- Leoni, Marco D'Alessandro, Francesco Mattioli, Sara Cibella: *ELENA microchannel plate detector: absolute detection efficiency for low energy neutral atoms*. *Optical Engineering* 01/2013; 52(5):051206-051206.
- 3) F Lazzarotto, N Vertolli, D Maschietti, AM Di Lellis, J Rynö, F Camozzi, S Selci, M D'Alessandro, R Leoni, F Mattioli: *The BepiColombo SERENA/ELENA Instrument On-Ground Testing with the ELENA Special Check Out Equipment (SCOE)*. 01/2013;
  - 4) Anna Milillo, Valeria Mangano, Alessandro Mura, Stefano Orsini, Elisabetta De Angelis, Andrea M. Di Lellis, Stefano Massetti, Christina Plainaki, Rosanna Rispoli, Stefano Selci, Nello Vertolli: *Exosphere generation of the Moon investigated through a high-energy neutral detector*. *Experimental Astronomy* 01/2011; 32(1):37-49.
  - 5) F. Mattioli, S. Cibella, R. Leoni, S. Orsini, A. M. Di Lellis, S. Selci, E. De Angelis, R. Rispoli, A. Mura, A. Milillo: *A nanotechnology application for low energy neutral atom detection with high angular resolution for the BepiColombo mission to Mercury*. *Microelectronic Engineering* 01/2011; 88(8):2330-2333.
  - 6) Plainaki, A. Milillo, S. Orsini, A. Mura, E. de Angelis, A. M. di Lellis, S. Livi: *Space Weathering on Near-Earth Objects*. 07/2010;
  - 7) Andrea Maria di Lellis, Stefano Selci, Elisabetta de Angelis, Roberto Leoni, Anna Milillo, Stefano Orsini, Iannis Dandouras: *The BepiColombo SERENA/ELENA unit development: a new technique to detect sputtered neutral atoms escaping from Mercury surface*. 05/2010;
  - 8) Elisabetta de Angelis, Rosanna Rispoli, Nello Vertolli, Stefano Selci, Roberto Leoni, Andrea Maria di Lellis, Stefano Orsini, Anna Milillo, Alessandro Mura, Francesco Mattioli: *ELENA instrument science and testing: validation with particle beam*. 05/2010;
  - 9) S. Orsini, S. Livi, K. Torkar, S. Barabash, A. Milillo, P. Wurz, A.M. Di Lellis, E. Kallio: *SERENA: A suite of four instruments (ELENA, STROFIO, PICAM and MIPA) on board BepiColombo-MPO for particle detection in the Hermean environment*. *Planetary and Space Science*. 01/2010;
  - 10) Plainaki, A. Milillo, A. Mura, S. Orsini, E. de Angelis, A. M. di Lellis, S. Livi: *Space weathering effects of the Europa's surface*. 09/2009;
  - 11) S. Orsini, S. Livi, K. Torkar, S. Barabash, A. Milillo, P. Wurz, A. M. di Lellis, E. Kallio: *SERENA: a Novel Instrument Package on board BepiColombo-MPO to study Neutral and Ionized Particles in the Hermean Environment*. 06/2009;  
A. Mura, A. Milillo, S. Orsini, C. Plainaki, E. de Angelis, A. di Lellis, S. Massetti, V. Mangano: *Proton precipitation and backscattering on Mercury surface*. 04/2009;
  - 12) M. di Lellis, S. Orsini, N. Vertolli, D. Brienza: *The Digital Processing Unit design approach for SERENA instrument on board BepiColombo*. 04/2009;
  - 13) S. Orsini, A. M. di Lellis, A. Milillo, S. Selci, R. Leoni, I. Dandouras: *Low energy high angular resolution neutral atom detection by means of micro-shuttering techniques: the BepiColombo SERENA/ELENA unit development*. 04/2009;
  - 14) Plainaki, A. Milillo, S. Orsini, A. Mura, E. de Angelis, A. M. di Lellis, S. Livi: *Neutral particle release from the surface of Europa*. 03/2009; 11:9896.
  - 15) Orsini, Anna Milillo, Alessandro Mura, Elisabetta de Angelis, Stefano Massetti, Andrea M. di Lellis: *Prospects of Solar System Environment Observations by Means of ENA Detection*. *Advances in Geosciences, Volume 15: Planetary Science (PS)*. 03/2009;
  - 16) L. Trenchi, M. F. Marcucci, G. Pallochia, G. Consolini, M. B. Cattaneo, A. Di Lellis, H. Rème, L. Kistler, C. M. Carr, J. B. Cao: *Magnetic reconnection at the dayside magnetopause with Double Star Tc1 data*. *Memorie della Societa Astronomica Italiana*. 01/2009;

- 17) Plainaki, A. Milillo, S. Orsini, A. Mura, E. De Angelis, A.M. Di Lellis, E. Dotto, S. Livi, V. Mangano, S. Massetti, M.E. Palumbo: *Space weathering on near-Earth objects investigated by neutral-particle detection*. Planetary and Space Science 11/2008;
- 18) S. Orsini, A. M. Di Lellis, A. Milillo, E. De Angelis, A. Mura, S. Selci, I. Dandouras, P. Cerulli-Irelli, R. Leoni, V. Mangano, S. Massetti, F. Mattioli, R Orfei, C. Austin, J. L. Medale, N. Vertolli, D. Di Giulio: *Low energy high angular resolution neutral atom detection by means of micro-shuttering techniques: the BepiColombo SERENA/ELENA sensor*. 11/2008;
- 19) L Trenchi, M ~F Marcucci, G Pallocchia, G Consolini, M ~B Bavassano Cattaneo, A ~M Lellis, H Rème, L Kistler, C ~M Carr, J ~B Cao: *Occurrence of reconnection jets at the dayside magnetopause: Double Star observations*. Journal of Geophysical Research (Space Physics). 07/2008; 113:7.
- 20) Anna Milillo, Christina Plainaki, Alessandro Mura, Valeria Mangano, Stefano Orsini, Elisabetta de Angelis, Stefano Massetti, Andrea Maria di Lellis: *Neutral particle detector for Laplace-Europa Orbiter: Simulations and potential merits of ion sputtering detection*. 01/2008;
- 21) R. D'Amicis, D. Telloni, S. Orsini, A. Mura, A. Milillo, A. di Lellis, E. Antonucci, M. Hilchenbach: *Numerical studies on neutral solar wind generated at high and low solar latitudes*. AGU Fall Meeting Abstracts. 12/2007;
- 22) L. Trenchi, M. Marcucci, G. Pallocchia, G. Consolini, M. Bavassano Cattaneo, A. di Lellis, H. Rème, L. Kistler, C. M. Carr, J. B. Cao: *Double Star observations of reconnection at the dayside magnetopause..* AGU Fall Meeting Abstracts. 12/2007;
- 23) P Drossart, G Piccioni, J C Gérard, M A Lopez-Valverde, A Sanchez-Lavega, L Zasova, R Hueso, F W Taylor, B Bézard, A Adriani, F Angrilli, G Arnold, K H Baines, G Bellucci, J Benkhoff, J P Bibring, A Blanco, M I Blecka, R W Carlson, A Coradini, A Di Lellis, T Encrenaz, S Erard, S Fonti, V Formisano, T Fouchet, R Garcia, R Haus, J Helbert, N I Ignatiev, P Irwin, Y Langevin, S Lebonnois, D Luz, L Marinangeli, V Orofino, A V Rodin, M C Roos-Serote, B Saggin, D M Stam, D Titov, G Visconti, M Zambelli, C Tsang, Eleonora Ammannito, Alessandra Barbis, Rainer Berlin, Carlo Bettanini, Angelo Boccaccini, Guillaume Bonnelo, Marc Bouyé, Fabrizio Capaccioni, Alejandro Cardesin, Francesco Carraro, Giovanni Cherubini, Massimo Cosi, Michele Dami, Maurizio De Nino, Davide Del Vento, Marco Di Giampietro, Alessandro Donati, Olivier Dupuis, Sylvie Espinasse, Anna Fabbri, Agnès Fave, Iacopo Fikai Veltroni, Gianrico Filacchione, Katia Garceran, Yamina Ghomchi, Maurizio Giustizi, Brigitte Gondet, Yann Hello, Florence Henry, Stefan Hofer, Gerard Huntzinger, Juergen Kachlicki, René Knoll, Driss Kouach, Alessandro Mazzoni, Riccardo Melchiorri, Giuseppe Mondello, Francesco Monti, Christian Neumann, Fabrizio Nuccilli, Jérôme Parisot, Claudio Pasqui, Stefano Perferi, Gisbert Peter, Alain Piacentino, Carlo Pompei, Jean-Michel Réess, Jean-Pierre Rivet, Antonio Romano, Natalie Russ, Massimo Santoni, Adelmo Scarpelli, Alain Sémerly, Alain Soufflot, Douchane Stefanovitch, Enrico Suetta, Fabio Tarchi, Nazzareno Tonetti, Federico Tosi, Bernd Ulmer: *A dynamic upper atmosphere of Venus as revealed by VIRTIS on Venus Express..* Nature 12/2007; 450(7170):641-5.
- 24) G Piccioni, P Drossart, A Sanchez-Lavega, R Hueso, F W Taylor, C F Wilson, D Grassi, L Zasova, M Moriconi, A Adriani, S Lebonnois, A Coradini, B Bézard, F Angrilli, G Arnold, K H Baines, G Bellucci, J Benkhoff, J P Bibring, A Blanco, M I Blecka, R W Carlson, A Di Lellis, T Encrenaz, S Erard, S Fonti, V Formisano, T Fouchet, R Garcia, R Haus, J Helbert, N I Ignatiev, P G J Irwin, Y Langevin, M A Lopez-Valverde, D Luz, L Marinangeli, V Orofino, A V Rodin, M C Roos-Serote, B Saggin, D M Stam, D Titov, G Visconti, M Zambelli, Eleonora Ammannito, Alessandra Barbis, Rainer Berlin, Carlo Bettanini, Angelo Boccaccini, Guillaume Bonnelo, Marc Bouye, Fabrizio Capaccioni, Alejandro Cardesin Moinelo, Francesco Carraro, Giovanni Cherubini, Massimo Cosi, Michele Dami, Maurizio

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- 25) G. Piccioni, P. Drossart, A. Sanchez-Lavega, R. Hueso, F. W. Taylor, C. F. Wilson, D. Grassi, L. Zasova, M. Moriconi, A. Adriani, S. Lebonnois, A. Coradini, B. Bezard, F. Angrilli, G. Arnold, K. H. Baines, G. Bellucci, J. Benkhoff, J.-P. Bibring, A. Blanco, M. I. Blecka, R. W. Carlson, A. Di Lellis, T. Encrenaz, S. Erard, S. Fonti, V. Formisano, T. Fouchet, R. Garcia, R. Haus, J. Helbert, N. I. Ignatiev, P. G. J. Irwin, Y. Langevin, M. A. Lopez-Valverde, D. Luz, L. Marinangeli, V. Orofino, A. V. Rodin, M. C. Roos-Serote, B. Saggin, D. M. Stam, D. Titov, G. Visconti, M. Zambelli: *South-polar features on Venus similar to those near the North Pole.* Nature 11/2007; 450:637.
- 26) P. Drossart, G. Piccioni, A. Adriani, F. Angrilli, G. Arnold, K. H. Baines, G. Bellucci, J. Benkhoff, B. Bezard, J.-P. Bibring, A. Blanco, M. I. Blecka, R. W. Carlson, A. Coradini, A. Di Lellis, T. Encrenaz, S. Erard, S. Fonti, V. Formisano, T. Fouchet, R. Garcia, R. Haus, J. Helbert, N. I. Ignatiev, P. G. J. Irwin, Y. Langevin, S. Lebonnois, M. A. Lopez-Valverde, D. Luz, L. Marinangeli, V. Orofino, A. V. Rodin, M. C. Roos-Serote, B. Saggin, A. Sanchez-Lavega, D. M. Stam, F. W. Taylor, D. Titov, G. Visconti, M. Zambelli, R. Hueso, C. C. C. Tsang, C. F. Wilson, T. Z. Afanasenko: *Scientific goals for the observation of Venus by VIRTIS on ESA/Venus Express mission.* Planetary and Space Science 10/2007; 55:1653-1672.
- 27) de Angelis, A. M. di Lellis, G. Vannaroni, S. Orsini, V. Mangano, A. Milillo, S. Massetti, A. Mura, N. Vertolli: *A facility to study the particles released by ion sputtering process.* 08/2007;
- 28) S. Orsini, A. Milillo, A. M. di Lellis, A. Mura, S. Massetti, E. de Angelis: *Prospects of the Solar System Environment Observation via ENA Measurements: towards Mercury and the Sun with BepiColombo and Solar Orbiter.* AGU Fall Meeting Abstracts. 01/2007;
- 29) V. Mangano, A. Milillo, A. Mura, S. Orsini, E. De Angelis, A. M. Di Lellis, P. Wurcz: *The contribution of impulsive meteoritic impact vapourization to the Hermean exosphere.* Planetary and Space Science 01/2007; 55(11):1541-1556.
- 30) R. D'Amicis, R. Bruno, M. B. Cattaneo, B. Bavassano, S. Orsini, J. A. Sauvaud, P. Louarn, A. M. Di Lellis: *Numerical Studies For The Solar Wind Proton And Alpha Particle Sensor.* 01/2007;
- 31) R. D. D'Amicis, S. Orsini, E. Antonucci, M. Hilchenbach, A. M. Di Lellis, D. Telloni, S. Fineschi, A. Milillo, R. Bruno, A. Mura, E. De Angelis: *Numerical Simulations Of The Neutral Solar Wind Distribution As Expected At The Solar Orbiter Position.* 01/2007;
- 32) Federico, A. M. Di Lellis, S. Fonte, C. Pauselli, G. Reitz, R. Beaujean: *EXOMARS IRAS (DOSE) radiation measurements.* Memorie della Societa Astronomica Italiana Supplementi. 01/2007; A.Mura, S. Orsini, A. Milillo, A.M. Di Lellis, E. De Angelis: *Neutral atom imaging at Mercury.* Planetary and Space Science 01/2006;
- 33) Mura, S. Orsini, A. Milillo, D. Delcourt, A. M. di Lellis, E. de Angelis, S. Massetti: *Neutral Atom Emission from Mercury.* Advances in Geosciences, Volume 3: Planetary Science (PS). 01/2006;

- 34) Milillo, P. Wurz, S. Orsini, D. Delcourt, E. Kallio, R. M. KILLEN, H. Lammer, S. Massetti, A. Mura, S. Barabash, G. Cremonese, I. A. Daglis, E. Angelis, A. M. Lellis, S. Livi, V. Mangano, K. Torkar: *Surface-Exosphere-Magnetosphere System Of Mercury*. Space Science Reviews 03/2005; 117(3):397-443.
- 35) V. Formisano, D. Grassi, R. Orfei, D. Biondi, E. Mencarelli, A. Mattana, F. Nespoli, A. Maturilli, M. Giuranna, M. Rossi, M. Maggi, P. Baldetti, G. Chionchio, B. Saggin, F. Angrilli, G. Bianchini, G. Piccioni, A. di Lellis, P. Cerroni, F. Capaccioni, M. T. Capria, A. Coradini, S. Fonti, V. Orofino, A. Blanco, L. Colangeli, E. Palomba, F. Esposito, D. Patsaev, V. Moroz, L. Zasova, N. Ignatiev, I. Khatuntsev, B. Moshkin, A. Ekonomov, A. Grigoriev, V. Nechaev, A. Kiselev, Y. Nikolsky, V. Gnedych, D. Titov, P. Orleanski, M. Rataj, M. Malgoska, A. Jurewicz, M. I. Blecka, H. Hirsh, G. Arnold, E. Lellouch, A. Marten, T. Encrenaz, J. Lopez Moreno, Atreya, S., Gobbi, P: *PFS: the Planetary Fourier Spectrometer for Mars Express*. 07/2004; 1240:71-94.
- 36) M ~F Marcucci, M ~B Bavassano Cattaneo, G Pallocchia, E Amata, R Bruno, A ~M Lellis, V Formisano, H Rème, J ~M Bosqued, I Dandouras, J -A Sauvaud, L ~M Kistler, E Moebius, B Klecker, C ~W Carlson, G ~K Parks, M McCarthy, A Korth, R Lundin, A Balogh: *Energetic magnetospheric oxygen in the magnetosheath and its response to IMF orientation: Cluster observations*. Journal of Geophysical Research 07/2004; 109:7203. A.M. di Lellis, S. Orsini, S. Livi, P. Wurz, A. Milillo: *The Neutral Atoms Detector Technologies Developed for the SERENA Package for BepiColombo*. 03/2004; 543:197-204.
- 37) G. Vannaroni, E. Pettinelli, C. Ottonello, A. Cereti, G. Della Monica, D. Del Vento, A.M. Di Lellis, R. Di Maio, R. Filippini, A. Galli, A. Menghini, R. Orosei, S. Orsini, S. Pagnan, F. Paolucci, A.R. Pisani, G. Schettini, M. Storini, G. Tacconi: *MUSES: multi-sensor soil electromagnetic sounding*. Planetary and Space Science 01/2004;
- 38) M. Badioli, A. Carusi, A. M. di Lellis, M. Frutti, C. D. La Padula, G. R. Lemaitre, P. Montiel, D. Nanni, A. Vignato, G. B. Valsecchi, R. F. Viotti: *Wide field astronomy with small size telescopes*. 12/2003; 538:261-264.
- 39) S. Massetti, S. Orsini, H. Lammer, A. Mura, P. Wurz, A. Milillo, A. M. di Lellis, E. de Angelis: *Dynamics of the Solar Wind-induced Cusp-associated sputtering emission from the surface of Mercury*. 04/2003; A.Milillo, S. Orsini, S. Massetti, A. Mura, E. de Angelis, H. Lammer, P. Wurz, A. M. di Lellis: *Possibility of deriving the Hermean surface composition through low energy neutral atom detection*. 04/2003;
- 40) Coradini, M. C. de Sanctis, G. Piccioni, S. Amici, R. Bianchi, F. Capaccioni, M. T. Capria, A. M. di Lellis, S. Espinasse, C. Federico: *In situ analysis of subsurface materials*. 04/2003;
- 41) di Lellis, S. Orsini, S. Livi, P. Wurz, A. Milillo, S. Barabash: *SERENA: A Neutral Atoms Detector to be proposed for the ESA's BepiColombo Planetary Orbiter*. 04/2003;
- 42) de Angelis, A. M. di Lellis, S. Orsini, V. Zanza, M. Maggi, N. Vertolli, R. D'Amicis, B. Tilia, A. Sibio: *Neutral atoms facility for space sensors characterization and BepiColombo/ELENA development instrument's progresses*. 04/2003;
- 43) R. D'Amicis, M. Hilchenbach, S. Orsini, E. Antonucci, R. Bruno, A. Milillo, S. Fineschi, A. M. di Lellis, S. Massetti: *Simulation of Coronal Hole-Associated Neutral Solar Wind as Expected at the Solar Orbiter Position*. 04/2003;
- 44) M. Marcucci, M. Bavassano Cattaneo, G. Pallocchia, E. Amata, A. di Lellis, R. Bruno, V. Formisano, H. Reme, J. Bosqued, I. Dandouras, J. Sauvaud, L. Kistler: *Magnetospheric Oxygen in the Magnetosheath as Observed by CIS Cluster*. AGU Fall Meeting Abstracts. 12/2002;
- 45) S. Livi, S. Orsini, D. McComas, C. Pollock, T. Moore, A. di Lellis, A. Milillo, P. Wurz: *The Medium and High Energy Neutral Atoms (MH-ENA) detector for the BepiColombo Mission to Mercury*. AGU Fall Meeting Abstracts. 12/2002;

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- 47) L. M. Kistler, H. U. Frey, E. Möbius, C. Mouikis, J. M. Quinn, B. Klecker, H. Rème, J. M. Bosqued, I. Dandouras, J. A. Sauvaud, A. M. Di Lellis, V. Formisano, M. F. Marcucci, C. W. Carlson, J. P. McFadden, G. K. Parks, M. McCarthy, A. Korth, L. Eliasson, R. Lundin, G. Paschmann, M. A. Popecki, S. B. Mende, J. D. Winningham, A. N. Fazakerley: *Motion of auroral ion outflow structures observed with Cluster and Image FUV*. Journal of Geophysical Research 08/2002;
- 48) Pallochia, R. Bruno, M. B. Bavassano Cattaneo, M. F. Marcucci, A. M. di Lellis, E. Amata, V. Formisano, H. Reme, J. M. Bosqued, I. Dandouras, J.-A. Sauvaud, L. M. Kistler, E. Moebius, B. Klecker, C. W. Carlson, J. P. McFadden, G. K. Parks, M. McCarthy, A. Korth, R. Lundin: *Turbulence in the solar wind as seen by Cluster CIS experiment: preliminary results on intermittency and scaling laws*. 02/2002; 477:361-364.
- 49) G. Mouikis, L. M. Kistler, W. Baumjohann, E. J. Lund, A. Korth, B. Klecker, E. Möbius, M. A. Popecki, J. A. Sauvaud, H. Rème, A. M. Di Lellis, M. McCarthy, C. W. Carlson: *Equator-S observations of He<sup>+</sup> energization by EMIC waves in the dawnside equatorial magnetosphere*. Geophysical Research Letters 01/2002; A. M. di Lellis, S. Orsini, E. de Angelis, A. Mura, A. Milillo, S. Livi, P. Wurz, V. Zanza: *Detection of Energetic Neutral Atoms From The Esa's Bepicolombo Planetary Orbiter. Low Energetic Atoms Basic Design*. 01/2002;
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