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Teaching experience

Experience supervising doctoral thesis and/or final year projects

- 1 Project title:** Computational Developments and Applications for Cryo-Electron Tomography
Entity: University of Basel **Type of entity:** University
Student: Stefano Scaramuzza
Date of reading: 07/12/2020
- 2 Project title:** Deep Learning tools for cryo electron tomography
Entity: Universidad del País Vasco
Student: Alma Vivas Lago
- 3 Project title:** New Tools for cryo electron tomography
Entity: Universidad del País Vasco **Type of entity:** University
Student: Raffaele Coray

Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

- 1 Name of the project:** TomoPath: High-resolution analysis of protein packing flexibility by in situ structural biology
Geographical area: Non EU International
Entity where project took place: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Daniel Castaño; Amedeo Caflisch; Paula Navarro
Nº of researchers: 3
Type of participation: Principal investigator
Code according to the funding entity: SNF 320030-236069
Start-End date: 01/09/2025 - 31/08/2029
Total amount: 2.860.000 € **Sub-project amount:** 705.000 €
- 2 Name of the project:** Meta-learning for the automated analysis of high-resolution cryo-electron tomography images
Entity where project took place: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Castaño Díez
Funding entity or bodies: ENTIDAD PUBLICA EMPRESARIAL RED.ES
Type of participation: Principal investigator
Name of the programme: Momentum



Start-End date: 20/12/2024 - 31/12/2028

Total amount: 294.000 €

3 Name of the project: Galactus: Graph Learning for Classification and Segmentation in Cryo Eletron Tomography

Geographical area: National

Entity where project took place: Consejo Superior de Investigaciones Científicas

City of entity: Leioa,

Name principal investigator (PI, Co-PI....): Daniel Castaño Díez

Nº of researchers: 3

Type of participation: Principal investigator

Code according to the funding entity: PID2024-158469NB-I00

Start-End date: 01/09/2025 - 31/05/2028

Duration: 4 years

Total amount: 340.000 €

4 Name of the project: Time-resolving the mechanism of exocytosis in situ

Entity where project took place: University of Basel **Type of entity:** University

City of entity: Basel, Switzerland

Name principal investigator (PI, Co-PI....): Daniel Castaño; Alex de Marco; Oriol Gallego

Nº of researchers: 3

Funding entity or bodies:

Human Frontier Science Program

Type of entity: Foundation

Type of participation: Principal investigator

Name of the programme: Human Frontiers Science Program - Research Grants

Code according to the funding entity: RGP0017/2020

Start-End date: 01/10/2020 - 30/10/2025

Total amount: 1.050.000 €

5 Name of the project: Dynamo Cell Insight

Entity where project took place: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Daniel Castaño Díez

Funding entity or bodies:

MCIU

Type of participation: Principal investigator

Name of the programme: Proyectos de Generación de Conocimiento 2021

Code according to the funding entity: PID2021-127309BN-I00

Start-End date: 01/09/2022 - 31/08/2025

Total amount: 181.500 €

6 Name of the project: Deep learning for high throughput cryo-electron tomography

Entity where project took place: University of Basel **Type of entity:** University

City of entity: Basel, Switzerland

Name principal investigator (PI, Co-PI....): Daniel Castaño

Nº of researchers: 1

Funding entity or bodies:

SNF

Type of entity: State agency

City funding entity: Switzerland

Type of participation: Principal investigator



Start-End date: 01/08/2018 - 31/07/2022

Total amount: 536.667 €

7 Name of the project: Software for Electron Microscopy of Membrane Proteins

Entity where project took place: University of Basel

City of entity: Basel, Switzerland

Nº of researchers: 6

Funding entity or bodies:

Swiss Science Council (SNF)

Type of entity: State agency

Type of participation: Team member

Code according to the funding entity: 144427

Start-End date: 01/10/2012 - 31/03/2016

Total amount: 470.000 €

Dedication regime: Full time

Results

Industrial and intellectual property

Title registered industrial property: Software for image reconstruction through GPU accelerators

Entity holder of rights: EMBLEM

Date of register: 2007

Companies: Gatan Inc.,

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

1 Alma Vivas-Lago; Daniel Castaño-Díez. Few-Shot Learning for Non-Vitrified Ice Segmentation. Scientific Reports. 15 - 5501, 2025. Available on-line at: <<https://doi.org/10.1038/s41598-025-86308-0>>.

Type of production: Scientific paper

Format: Journal

Position of signature: 2

Total no. authors: 2

Corresponding author: Yes

2 Raffaele Coray; Daniel Castaño-Díez. Geometry-aware template matching for cryo-electron tomograms in Dynamo. Structure. 33 - 9, pp. 1591 - 1602.e3. 2025. Available on-line at: <<https://www.sciencedirect.com/science/article/pii/S0969212625002254>>. ISSN 0969-2126

Type of production: Scientific paper

Format: Journal

Total no. authors: 2

Corresponding author: Yes

3 Raffaele Coray; Paula Navarro; Stefano Scaramuzza; Henning Stahlberg; Daniel Castaño-Díez. Automated fiducial-based alignment of cryo-electron tomography tilt series in Dynamo. Structure. 32 - 10, pp. 1808 - 1819.e4. 2024. Available on-line at: <<https://www.sciencedirect.com/science/article/pii/S0969212624002417>>. ISSN 0969-2126

**Type of production:** Scientific paper**Format:** Journal**Position of signature:** 5**Total no. authors:** 5**Corresponding author:** Yes

- 4** Nathaniel Talledge; Huixin Yang; Ke Shi; Raffaele Coray; Guichuan Yu; William G. Arndt; Shuyu Meng; Gloria C. Baxter; Luiza M. Mendonca; Daniel Castano-Diez; Hideki Aihara; Louis M. Mansky; Wei Zhang. HIV-2 Immature Particle Morphology Provides Insights into Gag Lattice Stability and Virus Maturation. JOURNAL OF MOLECULAR BIOLOGY. 435 - 15, 08/2023. ISSN 0022-2836

Type of production: Scientific paper**Format:** Journal**Position of signature:** 10**Total no. authors:** 13

- 5** Carlos Lopez-Robles; Stefano Scaramuzza; Elsa N. Astorga-Simon; Morie Ishida; Chad D. Williamson; Soledad Banos-Mateos; David Gil-Carton; Miguel Romero-Durana; Ander Vidaurrezaga; Juan Fernandez-Recio; Adriana L. Rojas; Juan S. Bonifacino; Daniel Castano-Diez; Aitor Hierro. Architecture of the ESCPE-1 membrane coat. NATURE STRUCTURAL & MOLECULAR BIOLOGY. 30 - 7, pp. 958+ - 958+. NATURE PORTFOLIO, 07/2023. ISSN 1545-9993

Type of production: Scientific paper**Format:** Journal**Position of signature:** 13**Total no. authors:** 14**Corresponding author:** Yes

- 6** Jasenko Zivanov; Joaquin Oton; Zunlong Ke; Andriko von Kuegelgen; Euan Pyle; Kun Qu; Dustin Morado; Daniel Castano-Diez; Giulia Zanetti; Tanmay A. M. Bharat; John A. G. Briggs; Sjors H. W. Scheres. A Bayesian approach to single-particle electron cryo-tomography in RELION-4.0. ELIFE. 11, 12/2022. ISSN 2050-084X

Type of production: Scientific paper**Format:** Journal**Position of signature:** 8**Total no. authors:** 12

- 7** J. Jimenez de la Morena; P. Conesa; Y. C. Fonseca; F. P. de Isidro-Gomez; D. Herreros; E. Fernandez-Gimenez; D. Strelak; E. Moebel; T. O. Buchholz; F. Jug; A. Martinez-Sanchez; M. Harastani; S. Jonic; J. J. Conesa; A. Cuervo; P. Losana; I. Sanchez; M. Iceta; L. del Cano; M. Gragera; R. Melero; G. Sharov; D. Castano-Diez; A. Koster; J. G. Piccirillo; J. L. Vilas; J. Oton; R. Marabini; C. O. S. Sorzano; J. M. Carazo. ScipionTomo: Towards cryo-electron tomography software integration, reproducibility, and validation. JOURNAL OF STRUCTURAL BIOLOGY. 214 - 3, ACADEMIC PRESS INC ELSEVIER SCIENCE, 09/2022. ISSN 1047-8477

Type of production: Scientific paper**Format:** Journal**Position of signature:** 23**Total no. authors:** 30

- 8** P. De Rossi; A.J. Lewis; J. Furrer; L. De Vos; T. Demeter; A. Zbinden; W. Zhong; V.I. Wiersma; C. Scialo; J. Weber; Z. Guo; S. Scaramuzza; M. Di Fabrizio; C. Böing; D. Castaño-Díez; A. Al-Amoudi; M. Pérez-Berlanga; T. Lashley; H. Stahlberg; M. Polymenidou. FTLD-TDP assemblies seed neoaggregates with subtype-specific features via a prion-like cascade. EMBO Reports. 2021. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119609555&doi=10.15252%2fembr.202153877&partnerID=40&md5=d0242901c985ef6893a437f542d4a901>>.

Type of production: Scientific paper**Format:** Journal**Position of signature:** 15**Total no. authors:** 20**Corresponding author:** Yes

- 9** E. de la Mora; M. Dezi; A. Di Cicco; J. Bigay; R. Gautier; J. Manzi; J. Polidori; D. Castaño-Díez; B. Mesmin; B. Antonny; D. Lévy. Nanoscale architecture of a VAP-A-OSBP tethering complex at membrane contact sites. Nature Communications. 12 - 1, 2021. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85107522496&doi=10.1038%2fs41467-021-23799-1&partnerID=40&md5=6b16cfb32a4293b4a7f20465a524a9a2>>.

Type of production: Scientific paper**Format:** Journal**Position of signature:** 8

**Total no. authors:** 11**Corresponding author:** No

- 10** S. Scaramuzza; D. Castaño-Díez. Step-by-step guide to efficient subtomogram averaging of virus-like particles with Dynamo. PLoS Biology. 19 - 8, 2021. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85113814752&doi=10.1371%2fjournal.pbio.3001318&partnerID=40&md5=afc7426f982a2205cc22afc88ecfe626>>

Type of production: Scientific paper**Format:** Journal**Position of signature:** 2**Total no. authors:** 2**Corresponding author:** Yes**Source of citations:** SCOPUS

- 11** P. Navarro; S. Scaramuzza; H. Stahlberg; D. Castaño-Díez. The Dynamo Software Package for Cryo-Electron Tomography and Subtomogram Averaging. Microscopy and Microanalysis. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85096016108&doi=10.1017%2fS1431927620023958&partnerID=40&md5=232dcc5c386af608b26aae8f30ff6a5d>>

Type of production: Scientific paper**Format:** Journal

- 12** A. Syntychaki; L. Rima; C. Schmidli; T. Stohler; A. Bieri; R. Sütterlin; H. Stahlberg; D. Castaño-Díez; T. Braun. "differential Visual Proteomics": Enabling the Proteome-Wide Comparison of Protein Structures of Single-Cells. Journal of Proteome Research. 18 - 9, pp. 3521 - 3531. 2019. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85071716776&doi=10.1021%2facs.jproteome.9b00447&partnerID=40&md5=e7edbb476a348ca871a8b404f1c71>>

Type of production: Scientific paper**Format:** Journal

- 13** D. Castaño-Díez; G. Zanetti. In situ structure determination by subtomogram averaging. Current Opinion in Structural Biology. 58, pp. 68 - 75. 2019. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067580011&doi=10.1016%2fj.sbi.2019.05.011&partnerID=40&md5=6d31b42c1c3f62ba354229958378628f>>

Type of production: Scientific paper**Format:** Journal**Position of signature:** 1**Total no. authors:** 2**Corresponding author:** Yes

- 14** S.H. Shahmoradian; A.J. Lewis; C. Genoud; J. Hench; T.E. Moors; P.P. Navarro; D. Castaño-Díez; G. Schweighauser; A. Graff-Meyer; K.N. Goldie; R. Sütterlin; E. Huisman; A. Ingrassia; Y. Gier; A.J.M. Rozemuller; J. Wang; A.D. Paepe; J. Erny; A. Staempfli; J. Hoernschemeyer; F. Großerüschkamp; D. Niedieker; S.F. El-Mashtoly; M. Quadri; W.F.J. Van IJcken; V. Bonifati; K. Gerwert; B. Bohrmann; S. Frank; M. Britschgi; H. Stahlberg; W.D.J. Van de Berg; M.E. Lauer. Lewy pathology in Parkinson's disease consists of crowded organelles and lipid membranes. Nature Neuroscience. 22 - 7, pp. 1099 - 1109. 2019. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067840164&doi=10.1038%2fs41593-019-0423-2&partnerID=40&md5=7d6bb3dc807f90b082dff689c14b6c76>>

Type of production: Scientific paper**Format:** Journal**Position of signature:** 7**Total no. authors:** 33**Corresponding author:** No

- 15** I. Irastorza-Azcarate; D. Castaño-Díez; D.P. Devos; O. Gallego. Live-Cell Structural Biology to Solve Biological Mechanisms: The Case of the Exocyst. Structure. 27 - 6, pp. 886 - 892. 2019. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067372627&doi=10.1016%2fj.str.2019.04.010&partnerID=40&md5=a47cdfea109b7464dcea4790dac30ca5>>

Type of production: Scientific paper**Format:** Journal

- 16** K.E. Leigh; P.P. Navarro; S. Scaramuzza; W. Chen; Y. Zhang; D. Castaño-Díez; M. Kudryashev. Subtomogram averaging from cryo-electron tomograms. Methods in Cell Biology. 152, pp. 217 - 259. 2019. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065585840&doi=10.1016%2fbs.mcb.2019.04.003&partnerID=40&md5=47f915c16346e936c12c5b7afb85a2be>>

Type of production: Scientific paper**Format:** Journal

**Position of signature:** 6**Total no. authors:** 7**Corresponding author:** Yes**17**

P.P. Navarro; C. Genoud; D. Castaño-Díez; A. Graff-Meyer; A.J. Lewis; Y. de Gier; M.E. Lauer; M. Britschgi; B. Bohrmann; S. Frank; J. Hench; G. Schweighauser; A.J.M. Rozemuller; W.D.J. van de Berg; H. Stahlberg; S.H. Shahmoradian. Cerebral Corpora amylacea are dense membranous labyrinths containing structurally preserved cell organelles. *Scientific Reports*. 8 - 1, 2018. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85058910659&doi=10.1038%2fs41598-018-36223-4&partnerID=40&md5=f7be1001a53d9b2917f2f4f27c6d1a96>>

Type of production: Scientific paper**Format:** Journal**18**

N.L. Opara; I. Mohacsi; M. Makita; D. Castano-Diez; A. Diaz; P. Juranić; M. Marsh; A. Meents; C.J. Milne; A. Mozzanica; C. Padeste; V. Panneels; M. Sikorski; S. Song; H. Stahlberg; I. Vartiainen; L. Vera; M. Wang; P.R. Willmott; C. David. Demonstration of femtosecond X-ray pump X-ray probe diffraction on protein crystals. *Structural Dynamics*. 5 - 5, 2018. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85054370637&doi=10.1063%2f1.5050618&partnerID=40&md5=57aa7fcdcbcbcab314338bc21406c221>>

Type of production: Scientific paper**Format:** Journal**19**

P.P. Navarro; H. Stahlberg; D. Castaño-Díez. Protocols for subtomogram averaging of membrane proteins in the Dynamo software package. *Frontiers in Molecular Biosciences*. 5 - SEP, 2018. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85054248040&doi=10.3389%2ffmolb.2018.00082&partnerID=40&md5=7511d8d6e7ac21c491c586695c36f5aa>>

Type of production: Scientific paper**Format:** Journal**Position of signature:** 3**Total no. authors:** 3**Corresponding author:** Yes**20**

J. Wang; M. Brackmann; D. Castaño-Díez; M. Kudryashev; K.N. Goldie; T. Maier; H. Stahlberg; M. Basler. Cryo-EM structure of the extended type VI secretion system sheath-tube complex. *Nature Microbiology*. 2 - 11, pp. 1507 - 1512. 2017. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85029795398&doi=10.1038%2fs41564-017-0020-7&partnerID=40&md5=b8b4569caa8805abbc92aaddf28e9722>>

Type of production: Scientific paper**Format:** Journal**21**

K.J. Ertel; D. Benefield; D. Castaño-Díez; J.G. Pennington; M. Horswill; J.A. Den Boon; M.S. Otegui; P. Ahlquist. Cryo-electron tomography reveals novel features of a viral rna replication compartment. *eLife*. 6, 2017. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85027173207&doi=10.7554%2feLife.25940&partnerID=40&md5=486651f5cbf71e965d0bc781399e1dc9>>

Type of production: Scientific paper**Format:** Journal**22**

D. Castaño-Díez; M. Kudryashev; H. Stahlberg. Dynamo Catalogue: Geometrical tools and data management for particle picking in subtomogram averaging of cryo-electron tomograms. *Journal of Structural Biology*. 197 - 2, pp. 135 - 144. 2017. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84996618744&doi=10.1016%2fj.jsb.2016.06.005&partnerID=40&md5=72c72c675e81df2ef380b69a55edc1f4>>

Type of production: Scientific paper**Format:** Journal**Position of signature:** 1**Total no. authors:** 3**Corresponding author:** Yes**23**

N. Biyani; R.D. Righetto; R. McLeod; D. Caujolle-Bert; D. Castano-Diez; K.N. Goldie; H. Stahlberg. Focus: The interface between data collection and data processing in cryo-EM. *Journal of Structural Biology*. 198 - 2, pp. 124 - 133. 2017. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85018192388&doi=10.1016%2fj.jsb.2017.03.007&partnerID=40&md5=d82c2afc161b63a68fa4e1ea178ef47b>>

Type of production: Scientific paper**Format:** Journal



24

D. Castaño-Díez. The Dynamo package for tomography and subtomogram averaging: Components for MATLAB, GPU computing and EC2 Amazon Web Services. *Acta Crystallographica Section D: Structural Biology*. 73 - 6, pp. 478 - 487. 2017. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85020201349&doi=10.1107%2fS2059798317003369&partnerID=40&md5=8b0ef18609da1486e3ffacc6628029e3>>

Type of production: Scientific paper

Format: Journal

Position of signature: 1

Total no. authors: 1

Corresponding author: Yes

25

M. Kudryashev; D. Castaño-Díez; C. Deluz; G. Hassaine; L. Grasso; A. Graf-Meyer; H. Vogel; H. Stahlberg. The Structure of the Mouse Serotonin 5-HT₃ Receptor in Lipid Vesicles. *Structure*. 24 - 1, pp. 165 - 170. 2016. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84953352276&doi=10.1016%2fj.str.2015.11.004&partnerID=40&md5=c5174f1a0125834267f6decde849f23a>>.

Type of production: Scientific paper

Format: Journal

26

D. Gil-Carton; S.T. Jaakkola; D. Charro; B. Peralta; D. Castaño-Díez; H.M. Oksanen; D.H. Bamford; N.G.A. Abrescia. Insight into the assembly of viruses with vertical single β -barrel major capsid proteins. *Structure*. 23 - 10, pp. 1866 - 1877. 2015. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84943573950&doi=10.1016%2fj.str.2015.07.015&partnerID=40&md5=0fab496e9d0077fe3570b2b950a9b315>>.

Type of production: Scientific paper

Format: Journal

27

M. Arheit; D. Castaño-Díez; R. Thierry; B.R. Gipson; X. Zeng; H. Stahlberg. Automation of image processing in electron crystallography. *Methods in Molecular Biology*. 955, pp. 313 - 330. 2013. Available on-line at: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84876030252&doi=10.1007%2f978-1-62703-176-9_18&partnerID=40&md5=5c8da2c067a5e90ecd01a64b6ed88>

Type of production: Scientific paper

Format: Journal

28

M. Arheit; D. Castaño-Díez; R. Thierry; B.R. Gipson; X. Zeng; H. Stahlberg. Image processing of 2D crystal images. *Methods in Molecular Biology*. 955, pp. 171 - 194. 2013. Available on-line at: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84876041117&doi=10.1007%2f978-1-62703-176-9_10&partnerID=40&md5=f9afd9ce4803e510e818fe11a6a6a4f>

Type of production: Scientific paper

Format: Journal

29

M. Kudryashev; M. Stenta; S. Schmelz; M. Amstutz; U. Wiesand; D. Castaño-Díez; M.T. Degiacomi; S. Münnich; C.K.E. Bleck; J. Kowal; A. Diepold; D.W. Heinz; M. Dal Peraro; G.R. Cornelis; H. Stahlberg. In situ structural analysis of the *Yersinia enterocolitica* injectisome. *eLife*. 2013 - 2, 2013. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84881044066&doi=10.7554%2feLife.00792&partnerID=40&md5=1302b53bc65bc8354453a390009172a7>>.

Type of production: Scientific paper

Format: Journal

30

B. Peralta; D. Gil-Carton; D. Castaño-Díez; A. Bertin; C. Boulogne; H.M. Oksanen; D.H. Bamford; N.G.A. Abrescia. Mechanism of Membranous Tunnelling Nanotube Formation in Viral Genome Delivery. *PLoS Biology*. 11 - 9, 2013. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84884543692&doi=10.1371%2fjournal.pbio.1001667&partnerID=40&md5=5baf1fc86a75c76dbf25e6632281f72c>>

Type of production: Scientific paper

Format: Journal

31

M. Arheit; D. Castaño-Díez; R. Thierry; P. Abeyrathne; B.R. Gipson; H. Stahlberg. Merging of image data in electron crystallography. *Methods in Molecular Biology*. 955, pp. 195 - 209. 2013. Available on-line at: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84876043314&doi=10.1007%2f978-1-62703-176-9_11&partnerID=40&md5=d614c9ec9cdddb13255449e35b3e3>

Type of production: Scientific paper

Format: Journal

- 32** J. Kowal; M. Chami; P. Ringler; S.A. Müller; M. Kudryashev; D. Castaño-Díez; M. Amstutz; G.R. Cornelis; H. Stahlberg; A. Engel. Structure of the dodecameric Yersinia enterocolitica secretin YscC and its trypsin-resistant core. *Structure*. 21 - 12, pp. 2152 - 2161. 2013. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84889586614&doi=10.1016%2fj.str.2013.09.012&partnerID=40&md5=15e01d3ef9d015451bd0c40f010811e1>>. **Type of production:** Scientific paper **Format:** Journal
- 33** M. Kudryashev; H. Stahlberg; D. Castaño-Díez. Assessing the benefits of focal pair cryo-electron tomography. *Journal of Structural Biology*. 178 - 2, pp. 88 - 97. 2012. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84860590097&doi=10.1016%2fj.jsb.2011.10.004&partnerID=40&md5=97dc4e8e5adf50f3839d6575733befbd>>. **Type of production:** Scientific paper **Format:** Journal
Position of signature: 3
Total no. authors: 3 **Corresponding author:** Yes
- 34** D. Castaño-Díez; M. Kudryashev; M. Arheit; H. Stahlberg. Dynamo: A flexible, user-friendly development tool for subtomogram averaging of cryo-EM data in high-performance computing environments. *Journal of Structural Biology*. 178 - 2, pp. 139 - 151. 2012. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84860574289&doi=10.1016%2fj.jsb.2011.12.017&partnerID=40&md5=c0bf6bebe8a47615cf5c4a0b29663ba8>>. **Type of production:** Scientific paper **Format:** Journal
Position of signature: 1
Total no. authors: 4 **Corresponding author:** Yes
- 35** H.R. Saibil; A. Seybert; A. Habermann; J. Winkler; M. Eltsov; M. Perkovic; D. Castaño-Díez; M.P. Scheffer; U. Haselmann; P. Chlanda; S. Lindquist; J. Tyedmers; A.S. Frangakis. Heritable yeast prions have a highly organized three-dimensional architecture with interfiber structures. *Proceedings of the National Academy of Sciences of the United States of America*. 109 - 37, pp. 14906 - 14911. 2012. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84866266469&doi=10.1073%2fpnas.1211976109&partnerID=40&md5=d1963b7cb845aa17e1b2147913398683>>. **Type of production:** Scientific paper **Format:** Journal
- 36** M. Kudryashev; D. Castaño-Díez; H. Stahlberg. Limiting factors in single particle cryo electron tomography. *Computational and Structural Biotechnology Journal*. 1 - 2, pp. e201207002 - e201207002. 2012. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84887220667&doi=10.5936%2fcsbj.201207002&partnerID=40&md5=464e26ef8cb9f903129dd46787f2964e>>. **Type of production:** Scientific paper **Format:** Journal
- 37** A. Al-Amoudi; D. Castaño-Díez; D.P. Devos; R.B. Russell; G.T. Johnson; A.S. Frangakis. The three-dimensional molecular structure of the desmosomal plaque. *Proceedings of the National Academy of Sciences of the United States of America*. 108 - 16, pp. 6480 - 6485. 2011. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-79955639490&doi=10.1073%2fpnas.1019469108&partnerID=40&md5=0d2dc85c1f15fae662c152d4690437f1>>. **Type of production:** Scientific paper **Format:** Journal
- 38** A.D. Schenk; D. Castaño-Díez; B. Gipson; M. Arheit; X. Zeng; H. Stahlberg. 3D Reconstruction from 2D crystal image and diffraction data. *Methods in Enzymology*. 482 - C, pp. 101 - 129. 2010. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-77957322579&doi=10.1016%2fS0076-6879%2810%2982004-X&partnerID=40&md5=2a6a09e626f0539ef04a625a3c2be03a>>. **Type of production:** Scientific paper **Format:** Journal
- 39** D. Castaño-Díez; M. Scheffer; A. Al-Amoudi; A.S. Frangakis. Alignator: A GPU powered software package for robust fiducial-less alignment of cryo tilt-series. *Journal of Structural Biology*. 170 - 1, pp. 117 - 126. 2010. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-77950518374&doi=10.1016%2fj.jsb.2010.01.014&partnerID=40&md5=aa37c6e3f5c22201ac91c2301df6e9fc>>.

**Type of production:** Scientific paper**Format:** Journal**40**

F. Amat; D. Castaño-Díez; A. Lawrence; F. Moussavi; H. Winkler; M. Horowitz. Alignment of cryo-electron tomography datasets. *Methods in Enzymology*. 482 - C, pp. 343 - 367. 2010. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-77957300464&doi=10.1016%2fS0076-6879%2810%2982014-2&partnerID=40&md5=1b36f211f408b9546e457ea>>

Type of production: Scientific paper**Format:** Journal**41**

S. Kühner; V. Van Noort; M.J. Betts; A. Leo-Madas; C. Batisse; M. Rode; T. Yamada; T. Maier; S. Bader; P. Beltran-Alvarez; D. Castaño-Díez; W.-H. Chen; D. Devos; M. Güell; T. Norambuena; I. Racke; V. Rybin; A. Schmidt; E. Yus; R. Aebersold; R. Herrmann; B. Böttcher; A.S. Frangakis; R.B. Russell; L. Serrano; P. Bork; A.-C. Gavin. Proteome organization in a genome-reduced bacterium. *Science*. 326 - 5957, pp. 1235 - 1240. 2009. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-70849132924&doi=10.1126%2fscience.1176343&partnerID=40&md5=2d94969cdad0923cace7213a7921c111>>

Type of production: Scientific paper**Format:** Journal**42**

D.C. Díez; M. Gunzburger; A. Kunoth. An adaptive wavelet viscosity method for hyperbolic conservation laws. *Numerical Methods for Partial Differential Equations*. 24 - 6, pp. 1388 - 1404. 2008. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-56249114883&doi=10.1002%2fnum.20322&partnerID=40&md5=4c72a1a38eee203015326978a1cd798a>>

Type of production: Scientific paper**Format:** Journal**43**

D. Castaño-Díez; D. Moser; A. Schoenegger; S. Pruggnaller; A.S. Frangakis. Performance evaluation of image processing algorithms on the GPU. *Journal of Structural Biology*. 164 - 1, pp. 153 - 160. 2008. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-51549091567&doi=10.1016%2fj.jsb.2008.07.006&partnerID=40&md5=b38a954df5e3c7a1849648dbf67d3105>>

Type of production: Scientific paper**Format:** Journal**44**

E. Lee; B.P. Fahimian; C.V. Iancu; C. Suloway; G.E. Murphy; E.R. Wright; D. Castaño-Díez; G.J. Jensen; J. Miao. Radiation dose reduction and image enhancement in biological imaging through equally-sloped tomography. *Journal of Structural Biology*. 164 - 2, pp. 221 - 227. 2008. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-53949110300&doi=10.1016%2fj.jsb.2008.07.011&partnerID=40&md5=e1bc878f5f19d13473ef79f6cd7839ab>>

Type of production: Scientific paper**Format:** Journal**45**

D. Castaño-Díez; A. Al-Amoudi; A.-M. Glynn; A. Seybert; A.S. Frangakis. Reprint of "Fiducial-less alignment of cryo-sections" [J. Struct. Biol. 159 (2007) 413-423]. *Journal of Structural Biology*. 161 - 3, pp. 249 - 259. 2008. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-40649105009&doi=10.1016%2fS1047-8477%2808%2900060-9&partnerID=40&md5=b82677612da22e03e253c5>>

Type of production: Scientific paper**Format:** Journal**46**

D. Castaño-Díez; A. Al-Amoudi; A.-M. Glynn; A. Seybert; A.S. Frangakis. Fiducial-less alignment of cryo-sections. *Journal of Structural Biology*. 159 - 3, pp. 413 - 423. 2007. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-34548357169&doi=10.1016%2fj.jsb.2007.04.014&partnerID=40&md5=06d4ff2d5587a4b9b07664fe69035825>>

Type of production: Scientific paper**Format:** Journal**47**

D. Castaño Díez; H. Mueller; A.S. Frangakis. Implementation and performance evaluation of reconstruction algorithms on graphics processors. *Journal of Structural Biology*. 157 - 1, pp. 288 - 295. 2007. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-33845286204&doi=10.1016%2fj.jsb.2006.08.010&partnerID=40&md5=7ddafd4ee89342be0cb740f8a0d7c26d>>

Type of production: Scientific paper**Format:** Journal



- 48** A. Al-Amoudi; D.C. Díez; M.J. Betts; A.S. Frangakis. The molecular architecture of cadherins in native epidermal desmosomes. *Nature*. 450 - 7171, pp. 832 - 837. 2007. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-36849060240&doi=10.1038%2fnature05994&partnerID=40&md5=5da431dfc1bc4ec890c8ca572c4bac62>>.
Type of production: Scientific paper **Format:** Journal
- 49** Daniel Castaño Díez; Angela Kunoth. Robust regression of scattered data with adaptive spline-wavelets. *IEEE transactions on image processing*. 15 - 6, pp. 1621 - 1632. 2006.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
- 50** D.C. Díez; A. Seybert; A.S. Frangakis. Tilt-series and electron microscope alignment for the correction of the non-perpendicularity of beam and tilt-axis. *Journal of Structural Biology*. 154 - 2, pp. 195 - 205. 2006. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-33646074519&doi=10.1016%2fj.jsb.2005.12.009&partnerID=40&md5=6b520a90a9e10100dec5210ea8445d38>>.
Type of production: Scientific paper **Format:** Journal
- 51** Daniel Castano Díez; Angela Kunoth. Multilevel regularization of wavelet based fitting of scattered data—some experiments. *Numerical Algorithms*. 39 - 1, pp. 81 - 96. 2005.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
- 52** Daniel Castaño Díez; Angela Kunoth. Adaptive fitting of scattered data by spline-wavelets. *Curve and Surface Fitting: Saint-Malo 2002*. Brentwood(United States of America): Nashboro Press, 2003. ISBN 0972848215
Type of production: Book chapter **Format:** Book
Position of signature: 1 **Degree of contribution:** Author or co-author of chapter in book
Total no. authors: 2
- 53** P.D. Abeyrathne; M. Arheit; F. Kebbel; D. Castano-Díez; K.N. Goldie; M. Chami; H. Stahlberg; L. Renault; W. Kühlbrandt. Analysis of 2-D crystals of membrane proteins by electron microscopy. *Comprehensive Biophysics*. 1, pp. 277 - 310. 2012. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-84882792762&doi=10.1016%2fB978-0-12-374920-8.00119-3&partnerID=40&md5=528bf2d5d9bf878c8ad462e67>>.
Type of production: Scientific book or monograph **Format:** Book

Works submitted to national or international conferences

- 1** **Title of the work:** Hand-on use of Dynamo for cryoET data
Name of the conference: EMBO Workshop for image Analysis
Type of event: Training Session
Type of participation: Participatory - invited / keynote talk **Reasons for participation:** Upon invitation
City of event: Londres, United Kingdom
Date of event: 01/09/2023
End date: 10/10/2023
Organising entity: Birkbeck College
- 2** **Title of the work:** New tools in the Dynamo Software
Name of the conference: 44º Congreso Nacional de la Sociedad Española de Bioquímica y Biología Molecular
Type of event: Conference
Type of participation: Participatory - invited / keynote talk



Corresponding author: Yes

City of event: Malaga, Spain

Date of event: 06/09/2022

End date: 09/09/2022

Organising entity: Sociedad Española de Bioquímica y biología molecular

3 Title of the work: Training workshop on Tomography

Name of the conference: EMBO Workshop for image Analysis

Type of event: Training Session

Type of participation: Participatory - invited /
keynote talk

Reasons for participation: Upon invitation

City of event: Londres, United Kingdom

Date of event: 01/09/2021

End date: 10/10/2021

Organising entity: Birkbeck College

4 Title of the work: Hand-on use of Dynamo for cryoET data

Name of the conference: EMBO Workshop for Image Analysis in cryoEM

Type of event: Training Session

Type of participation: Participatory - invited /
keynote talk

Reasons for participation: Upon invitation

City of event: Heidelberg, Germany

Date of event: 01/09/2020

End date: 10/10/2020

Organising entity: EMBL

5 Title of the work: Training workshop on Tomography

Name of the conference: EMBO Workshop for image Analysis

Type of event: taller

Type of participation: Participatory - invited /
keynote talk

Reasons for participation: Upon invitation

City of event: Londres, United Kingdom

Date of event: 01/09/2019

End date: 10/10/2019

Organising entity: EMBL

6 Title of the work: Hands-On Training on Subtomogram Averaging

Name of the conference: Dynamo Workshop on Subtomogram Averaging and Tomography

Type of event: Training Session

Type of participation: Organizational - Scientific and organizing committee

City of event: Basilea, Switzerland

Date of event: 28/08/2019

End date: 30/08/2019

Organising entity: University of Basel

City organizing entity: Basilea, Switzerland

7 Title of the work: Training workshop on Tomography

Name of the conference: EMBO Workshop for image Analysis

Type of event: Training Session

Type of participation: Participatory - invited /
keynote talk

Reasons for participation: Upon invitation



City of event: Heidelberg, Germany

Date of event: 01/09/2018

End date: 10/10/2018

Organising entity: EMBL

- 8** **Title of the work:** Training workshop on Tomography
Name of the conference: EMBO Workshop for image Analysis
Type of event: taller
Type of participation: Participatory - invited / **Reasons for participation:** Upon invitation
keynote talk
City of event: Heidelberg, Germany
Date of event: 01/09/2018
End date: 10/10/2018
Organising entity: EMBL

- 9** **Title of the work:** Hands-On Training on Subtomogram Averaging
Name of the conference: Dynamo Workshop on Subtomogram Averaging and Tomography
Type of event: Training Session
Type of participation: Organizational - Scientific and organizing committee
City of event: Basilea, Switzerland
Date of event: 23/08/2017
End date: 25/08/2017
Organising entity: University of Basel
City organizing entity: Basel, Switzerland

- 10** **Title of the work:** Semi automated particle picking in cryoET
Name of the conference: Gordon Research Conference on Three Dimensional Electron Microscopy
Type of event: Conference
Corresponding author: Yes
City of event: Les Diablerets, Switzerland
Date of event: 11/06/2017
End date: 16/06/2017
Organising entity: Gordon Research Conference

- 11** **Title of the work:** Hands-On Training on Subtomogram Averaging
Name of the conference: Dynamo Workshop on Subtomogram Averaging and Tomography
Type of event: Taller
Type of participation: Organizational - Scientific and organizing committee
City of event: Basilea, Switzerland
Date of event: 17/08/2016
End date: 19/08/2019
Organising entity: University of Basel
City organizing entity: Basilea, Switzerland

- 12** **Title of the work:** Subtomogram Averaging with Dynamo
Name of the conference: CCP-EM Spring symposium
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Oxford, United Kingdom
Date of event: 01/05/2016
End date: 02/05/2016



Organising entity: CCPEM

City organizing entity: Oxford, United Kingdom

Type of contribution: Scientific paper

Castaño Díez.

- 13** **Title of the work:** Training workshop on Tomography
Name of the conference: EMBO Workshop for image Analysis
Type of event: taller
Type of participation: Participatory - invited / **Reasons for participation:** Upon invitation
keynote talk
City of event: Heidelberg, Germany
Date of event: 01/09/2014
End date: 10/10/2014
Organising entity: EMBL
- 14** **Title of the work:** Markerless Alignment for Cryo-Electron Tomography Tilt Series
Name of the conference: Three Dimensional Electron Microscopy Gordon Research Conference
City of event: Il Ciocco, Tuscany, Italy
Date of event: 20/06/2010
End date: 25/06/2010
Organising entity: Gordon Research Conferences
- 15** **Title of the work:** The use of GPUs in cryo electron Tomography
Name of the conference: The Asia-Pacific Congress on Electron Tomography
City of event: Brisbane, Australia
Date of event: 31/01/2009
End date: 02/02/2009
Organising entity: APCET
- 16** **Title of the work:** Iterative reconstruction methods for of cryo electron tomography
Name of the conference: Third Annual meeting of the "3DEM Network of Excellence"
Type of event: Conference
City of event: Palma de Mallorca, Spain
Date of event: 23/01/2007
End date: 25/01/2007
Organising entity: 3DEM Network



R&D management and participation in scientific committees

Organization of R&D activities

- 1** **Title of the activity:** 2025 Tsinghua Spring School on Cryo-ET with Dynamo
Type of activity: International Workshop
Convening entity: University of Tsinghua
Start-End date: 02/03/2025 - 07/03/2025
- 2** **Title of the activity:** Training Tomography Workshop
Type of activity: Workshop
Geographical area: European Union
Convening entity: Universidad de Göttingen
City convening entity: Göttingen, Germany
Start-End date: 10/04/2024 - 12/04/2024
Duration: 3 days
- 3** **Title of the activity:** Dynamo hands on workshop on Tomography
Type of activity: Workshop
Geographical area: European Union
Convening entity: Universidad de Copenhagen
City convening entity: Basel, Switzerland
Start-End date: 26/01/2024 - 30/01/2024
Duration: 3 days
- 4** **Title of the activity:** Scilife lab Practical Workshop for CryoET
Type of activity: Workshop
Geographical area: European Union
Convening entity: SciLife Lab
City convening entity: Estocolmo, Sweden
Start-End date: 24/10/2023 - 26/10/2023
Duration: 3 days
- 5** **Title of the activity:** PSI Hands on Workshop on Dynamo
Type of activity: Workshop
Geographical area: European Union
Convening entity: Paul Scherrer Institute
City convening entity: Brugg, Switzerland
Start-End date: 15/08/2023 - 17/08/2023
Duration: 3 days
- 6** **Title of the activity:** Dynamo workshop on Tomography
Type of activity: Workshop
Geographical area: Non EU International
Convening entity: Universidad de Basel
Type of entity: University
City convening entity: Basel, Switzerland
Start-End date: 28/08/2018 - 31/08/2019
Duration: 4 days
- 7** **Title of the activity:** Dynamo workshop on Tomography
Type of activity: Workshop
Geographical area: Non EU International
Convening entity: Universidad de Basel
Type of entity: University
City convening entity: Basel, Switzerland
Start-End date: 28/08/2019 - 30/08/2019
Duration: 3 days
- 8** **Title of the activity:** Dynamo workshop on Tomography
Type of activity: Workshop
Geographical area: Non EU International
Convening entity: University of Basel



City convening entity: Basel, Switzerland

Start-End date: 23/08/2017 - 25/08/2017

Duration: 3 days

9 Title of the activity: Dynamo workshop on Tomography

Type of activity: Workshop

Geographical area: Non EU International

Convening entity: Universidad de Basel

Type of entity: University

City convening entity: Basel, Switzerland

Start-End date: 17/08/2016 - 19/08/2016

Duration: 3 days

10 Title of the activity: Hands on workshop on Subomogram Averaging with Dynamo

Type of activity: Workshop

Geographical area: Non EU International

Convening entity: Universidad de Basel

Type of entity: University

City convening entity: Basel, Switzerland

Start-End date: 21/08/2015 - 23/08/2015

Duration: 3 days

11 Title of the activity: Dynamo workshop on Tomography

Type of activity: Workshop

Geographical area: Non EU International

Convening entity: Universidad de Basel

Type of entity: University

City convening entity: Basel, Switzerland

Start-End date: 22/08/2014 - 25/08/2014

Duration: 3 days

12 Title of the activity: Dynamo workshop on Tomography

Type of activity: Workshop

Geographical area: Non EU International

Convening entity: Universidad de Basel

Type of entity: University

City convening entity: Basel, Switzerland

Start-End date: 16/08/2013 - 18/08/2013

Duration: 3 days

13 Title of the activity: NCCR Dynamo workshop on Tomography

Type of activity: Workshop

Geographical area: Non EU International

Convening entity: Universidad de Basel

Type of entity: University

City convening entity: Basel, Switzerland

Start-End date: 03/09/2012 - 07/09/2012

Duration: 5 days