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Optimization for physics and engineering applications • Plasma integrated modeling for fusion reactor design • Fusion reactor prediction with high-fidelity physics • Turbulence and transport physics validation in tokamaks

PROFESSIONAL EXPERIENCE

MIT Plasma Science and Fusion Center (MIT PSFC) – Cambridge (United States) September 2015 – present

Group Leader, MFE Integrated Modeling (June 2023 – present)
- Developing workforce of students and researchers specialized in the modeling of fusion devices, https://mfeim.mit.edu/.
- Developing and maintaining open-source MITIM repository, https://github.com/pabloprf/MITIM-fusion.

Research Scientist III (March 2024 – present)
Research Scientist (May 2021 – February 2024)
- Working on integrated modeling of tokamaks, reactor performance predictions, transport model validation, and optimization.
- Developing open-source PORTALS framework to accelerate transport model predictions with high physics fidelity.
- Participation and active contributor to the physics basis of SPARC and ARC, and the planning of experimental campaigns.
- Supporting analysis and modeling of experiments in JET, DIII-D, ASDEX Upgrade and Alcator C-Mod tokamaks.

Postdoctoral Associate (May 2019 – May 2021)
- Contributed to development of physics basis of SPARC (collaboration MIT-CFS) via physics-based integrated modeling.
- Studied turbulence and transport in ASDEX Upgrade via optimization algorithms and perturbative techniques.
- Supported transport modeling of isotope effects in the JET tokamak (collaboration MIT-ORNL).

Research Assistant, Ph.D. candidate (July 2017 – May 2019)
Research Assistant, graduate student (September 2015 – July 2017)
- Resolved 20-year-old question in fusion research, resulting in a high-impact publication in *Physical Review Letters*.
- Conducted experiments as session leader in Alcator C-Mod and DIII-D tokamaks. Operated laser blow-off in Alcator C-Mod.
- Summer stay at General Atomics for the study of heat-pulses on DIII-D and power balance analysis in negative triangularity.
- Summer stay at Max Planck Institute for the implementation of VITALS tool to study ASDEX Upgrade plasmas.

Politecnico di Milano, Laboratory of Fluid Machines – Milan (Italy) September 2014 – May 2015

Research Consultant (April 2015 – May 2015)
Research Assistant, M.Sc. candidate (September 2014 – April 2015)
- Optimized Organic Rankine Cycle (ORC) turbine stage, resulting in half pressure losses compared to original designs.
- Developed automatic shape-optimization tool for turbomachinery blades using evolutionary strategies and surrogate models.

Drexel University, Department of Mechanical Engineering and Mechanics – Philadelphia, PA (USA) January 2014 – June 2014

Research Assistant, graduate student (January 2014 – June 2014)
- Investigated CO2 decomposition through micro-scale non-thermal plasma discharges via CFD simulations.

EDUCATION

Massachusetts Institute of Technology (MIT) – Cambridge, MA (USA) May 2019
Doctor of Philosophy (Ph.D.) in Nuclear Science and Engineering, specialization in Plasma Physics GPA: 4.8/5.0
- Relevant Coursework: Plasma Physics, Nuclear Fusion, Machine Learning, Optimization Methods
- Thesis: "*Perturbative transport experiments and time-dependent modeling in Alcator C-Mod and DIII-D*" (*Del Favero* prize)

Drexel University – Philadelphia, PA (USA) June 2014
Master of Science (M.Sc.) in Mechanical Engineering GPA: 4.0/4.0
- Relevant Coursework: Advanced Fluid Mechanics & Heat Transfer, Numerical Methods Class rank: #1 (out of 49)
- Double-Degree Master's Thesis at Politecnico di Milano (Italy), September 2014 – May 2015
- Thesis: "Development of shape-optimization tools for the aerodynamic design of turbomachinery blades" (*Cátedra Repsol* prize)

Universidad Politécnica de Madrid – Madrid (Spain) April 2013
Ingeniero Industrial - Técnicas Energéticas GPA: 9.0/10.0
- Equivalent to *Bachelor and Master of Science (B.Sc. and M.Sc.) in Energy Engineering* Class rank: #1 (out of 419)
- Relevant Coursework: Nuclear Physics & Technology, Fluid Mechanics, Thermodynamics

HONORS, AWARDS & FELLOWSHIPS

- Forbes "30 Under 30" (Science, 2021) — Forbes Magazine, Dec. 2020
- *Del Favero* Doctoral Thesis Prize for most innovative advance in the field — MIT Nuclear Science and Engineering, Dec. 2019
- *Young Engineer* Early Career Achievement Award — Alumni Association ETSII-UPM, June 2018
- *Manson Benedict* Award for Academic Excellence and Professional Promise — MIT Nuclear Science and Engineering, May 2018
- MIT International Science and Technology Initiatives (MISTI) Scholarship — MIT MISTI program, May 2018
- Award for the Best Student in Industrial Engineering — ETSII-UPM, Dec. 2015
- Award for the Best Student in Energy Engineering — ETSII-UPM, Dec. 2015
- *Repsol* Award for the Best Master's Thesis Project — Cátedra Repsol ETSII-UPM, Dec. 2015
- *Caja Ingenieros* Award for Excellent Academic Progress — Caja Ingenieros UPM, Dec. 2015
- *La Caixa* Fellowship for graduate studies in North America — Banking Foundation la Caixa, July 2014
- Excellence in Performance Award — Drexel University, June 2014
- ERASMUS Scholarship for graduate studies — European Union & Government of Spain, Apr. 2014
- *Enrique Rodríguez-Marín* Award for Excellent Academic Progress — Romanillos Foundation, Mar. 2014
- Award for Excellent Academic Progress — Government of Madrid, Jan. 2014
- Atlantis Fellowship for Graduate Studies, EAGLES Consortium — FIPSE U.S. & European Union, Apr. 2013
- High-Performing Student Award — ETSII-UPM, Dec. 2011
- Award for Excellent Academic Progress — Government of Madrid, Jan. 2011
- Award for the Best Results in the University Entrance Test — Universidad Complutense de Madrid, Mar. 2010

SERVICE, MENTORSHIP AND FUNDING ACTIVITIES

- **Mentorship:**

  - Group Leader of MFE Integrated Modeling (MFE-IM) group at MIT PSFC (June 2023 – present)
  - Founder of MFE Integrated Modeling (MFE-IM) interest group at MIT PSFC (August 2021 – December 2022)
  - Mentoring of Postdoctoral Researchers:
    - Mentor of MIT Postdoctoral Associate **M. Muraca** (June 2023 – present)
      Topic: Development of scenario databases for SPARC using integrated modeling frameworks.
  - Advising and Supervision of Graduate Students:
    - *(planned)* Co-advisor of upcoming MIT graduate student, to start in Fall 2024.
      Topic: "*Machine-Learning accelerated turbulence calculations for predictive plasma modeling*"
    - Advisor of MIT graduate student **J. Hall** (September 2023 – present)
      Topic: Modeling of ARC-class power plant devices with different transport fidelity levels
    - Co-advisor of MIT graduate student **V. Galvan** (September 2022 – present)
      Topic: Surrogate modeling for transport predictions in burning plasmas
    - Advisor of MIT graduate student **A. Saltzman** (September 2021 – present)
      Thesis: "*Enhancing tokamak design by directly using physics-based models in optimization*" (expected by Spring 2027)
    - Thesis Reader & Supervision Committee member of MIT graduate student **C. Yoo** (July 2021 – present)
      Thesis: "*Database-driven studies of turbulence at ASDEX Upgrade*" (expected by Spring 2024)
    - Thesis Defense & Supervision Committees member of MIT graduate student **R. Bielajew** (May 2020 – November 2023).
      Thesis: "*Experimental Study of Edge Electron Temperature Fluctuations in L-mode, I-mode and H-mode Plasmas at ASDEX Upgrade*"
  - Advising of Undergraduate and Visiting students:
    - Advisor of MIT visiting student **J. Aguilera** (Fall 2023 – Spring 2024).
      Project: "*Investigation of surrogate alternatives to model databases of turbulence simulations in fusion devices*"
    - Co-advisor of MIT undergraduate student **S. Packman** (Spring 2023 – Fall 2023).
      Project: "*Magnetic Design of Superconducting Solenoid for Induction Heating through Surrogate Bayesian Optimization*"
    - Co-advisor of MIT undergraduate student **L. Shoji** (Spring 2023).
      Project: "*Analyzing Alcator C-Mod Data to Derive a L-Mode Boundary Condition for SPARC*"
    - Co-advisor of MIT undergraduate student **S. Kantamneni** (Spring 2022).
      Project: "Study of the radial requirements for accurate, first-principles core transport simulations"
    - Advisor of MIT undergraduate student **B. Spector** (Summer 2021).
      Project: "*Characterization and Performance Predictions of L-mode Plasmas in the SPARC Tokamak*"

- **Official Roles, Committees and Boards Memberships:**

  - Member of Executive Committee for Sherwood Fusion Theory Conference (October 2023 – present).
  - Alternate Liaison Officer for PSFC as IAEA Collaborating Center (September 2023 – present).
  - Co-lead of the SPARC Performance & Transport group at MIT PSFC (June 2022 – present).
  - Member of IAEA Int'l Program Advisory Committee (IPAC) on Fusion Data Proc., Validation & Analysis (February 2021 – present).
  - Member of Executive Committee for U.S. Transport Taskforce Workshop (May 2021 – present).
  - Responsible Officer for TRANSP at the MIT PSFC (2019 – present).
  - Member of Executive Committee of Spain@MIT Association (2016 – 2019).
  - Students Representative (*Delegado de Curso*) at Universidad Politécnica de Madrid (2009 – 2013).

- **Grant Proposal Writing and Contributions:**

  - Co-PI of DOE-ASCR Leadership Computing Challenge (ALCC) Proposal on Gyrokinetic Pred. for FPPs (2023, *submitted*).
  - PI of MIT subaward to collaborate with UCSD on new SciDAC FES-ASCR proposal (2023, *awarded*).
  - Key Person of DOE-FES proposal on Machine Learning, Artificial Intelligence, and Data Resources for Fusion (2023, *not awarded*).
  - PI of DOE-ASCR proposal on Scientific Machine Learning for Complex Systems (2023, *not submitted*).
  - PI of CFS Research Project Proposal (RPP042) on Turbulence Modeling for ARC (2022, *awarded*).
  - Co-PI of DOE-ASCR Leadership Computing Challenge (ALCC) Proposal on Gyrokinetic Pred. for Burning Plasmas (2022, *awarded*).
  - Co-Author of 5-year CFS Research Project Proposal (RPP020) on SPARC Performance and Transport (2022, *awarded*).
  - Co-Author of 5-year DOE-FES proposal on MFE Cooperative Agreement for MIT PSFC (2021, *awarded*).
  - Author of Facebook Research grant on machine learning and Bayesian optimization (2021, *not awarded*).
  - Author of Subaward to collaborate with Oak Ridge National Lab to perform research at JET (2020, *awarded*).
  - Author of DOE-FES proposal to collaborate with Oak Ridge National Lab to perform research at JET (2019, *not awarded*).

- **Instruction, Moderation and Chair Activities:**

  - Program committee member and session chairperson for the US/EU Transport Taskforce Workshop (May 2023).
  - Deputy chairperson of MFE Science Meetings at MIT PSFC (July 2022 – present).
  - Program committee member and session chairperson for the US/EU Transport Taskforce Workshop (April 2022).
  - Co-lead of "Needs for burning plasma operation and ITER" session at TRANSP Users Virtual Workshop (January 2022).
  - Chairperson of "Deep Learning" session at the 4th IAEA FDPVA Technical Meeting (December 2021).
  - Mentor for graduate course at MIT NSE: 22.63 Engineering Principles for Fusion Reactors (Fall 2020), led to journal publication.
  - Moderator for 1st Computational Physics School for Fusion Research at MIT (August 2019).
  - Grader for graduate course at MIT NSE: 22.611 Introduction to Plasma Physics I (Fall 2016).

- **Reviewer and Referee Activities:**

  - Reviewer of applications for admission to MIT Nuclear Science & Engineering Department's graduate program (2022 – present).
  - Reviewer of proposals (2021 – present): U.S. Department of Energy – Office of Science.
  - Referee for scientific journals (2018 – present): *Nuclear Fusion*, *IEEE Transactions on Plasma Science* and *Physics of Plasmas*.

FIRST-AUTHOR PEER-REVIEWED JOURNAL PUBLICATIONS

12* *(to be submitted)* **P. Rodriguez-Fernandez** et al., "Study of the isotope effect in JET Ohmic plasmas with direct nonlinear gyrokinetic profile prediction", Plasma Phys. Control. Fusion, special issue of 2023 EPS-DPP invited contributions.

11. **P. Rodriguez-Fernandez**, N. T. Howard, A. Saltzman, L. Shoji, T. Body, D. J. Battaglia, J. W. Hughes, J. Candy, G. M. Staebler, A. J. Creely, "Core performance predictions in projected SPARC first-campaign plasmas with nonlinear CGYRO", arXiv:2403.15633 (2024). https://arxiv.org/abs/2403.15633
(and *submitted* to Phys. Plasmas, special issue of 2023 APS-DPP invited contributions).

10. **P. Rodriguez-Fernandez**, N.T. Howard, A. Saltzman, S. Kantamneni, J. Candy, C. Holland, M. Balandat, S. Ament and A.E. White, "Enhancing predictive capabilities in fusion burning plasmas through surrogate-based optimization in core transport solvers", arXiv:2312.12610 (2023). https://doi.org/10.48550/arXiv.2312.12610
(and *submitted* to Nucl. Fusion, special issue of 2023 IAEA-FEC contributions).

9. **P. Rodriguez-Fernandez**, N.T. Howard, and J. Candy, "Nonlinear gyrokinetic predictions of SPARC burning plasma profiles enabled by surrogate modeling", Nucl. Fusion 62, 076036 (2022). https://doi.org/10.1088/1741-4326/ac64b2

8. **P. Rodriguez-Fernandez**, C. Angioni, and A. E. White, "Local Transport Dynamics of Cold Pulses in Tokamak Plasmas", Rev. Mod. Plasma Phys. 6, 10 (2022). https://doi.org/10.1007/s41614-022-00071-7

7. **P. Rodriguez-Fernandez**, A.J. Creely, M.J. Greenwald, D. Brunner, S.B. Ballinger, C.P. Chrobak, D.T. Garnier, R. Granetz, Z.S. Hartwig, N.T. Howard, J.W. Hughes, J.H. Irby, V.A. Izzo, A.Q. Kuang, Y. Lin, E.S. Marmar, R.T. Mumgaard, C. Rea, M.L. Reinke, V. Riccardo, J.E. Rice, S.D. Scott, B.N. Sorbom, J.A. Stillerman, R. Sweeney, R.A. Tinguely, D.G. Whyte, J.C. Wright and D.V. Yuryev, "Overview of the SPARC physics basis towards the exploration of burning-plasma regimes in high-field, compact tokamaks", Nucl. Fusion 62, 042003 (2022). https://doi.org/10.1088/1741-4326/ac1654

6. **P. Rodriguez-Fernandez**, N. T. Howard, M. J. Greenwald, A. J. Creely, J. W. Hughes, J. C. Wright, C. Holland, Y. Lin, F. Sciortino and the SPARC team, "Predictions of core plasma performance for the SPARC tokamak", Journal of Plasma Physics 86(5), 865860503 (2020). https://doi.org/10.1017/S0022377820001075

5. **P Rodriguez-Fernandez**, A E White, N T Howard, B A Grierson, L Zeng, X Yuan, G M Staebler, M E Austin, T Odstrcil, T L Rhodes, F Sciortino, J E Rice, K Thome, C Angioni, E Fable and O Meneghini, "Predict-first Experiments and Modeling of Perturbative Cold Pulses in the DIII-D Tokamak", Phys. Plasmas 26, 062503 (2019). https://doi.org/10.1063/1.5096800

4. **P Rodriguez-Fernandez** , A E White, N T Howard, B A Grierson, X Yuan, G M Staebler, J E Rice, C Angioni, N M Cao, A J Creely, E Fable, M J Greenwald, A E Hubbard, J W Hughes, J H Irby and F Sciortino, "Perturbative Transport Modeling of Cold-Pulse Dynamics in Alcator C-Mod Ohmic Plasmas", Nucl. Fusion 59, 066017 (2019) https://doi.org/10.1088/1741-4326/ab1575

3. **P Rodriguez-Fernandez,** A E White, N T Howard, B A Grierson, G M Staebler, J E Rice, X Yuan, N M Cao, A J Creely, M J Greenwald, A E Hubbard, J W Hughes, J H Irby and F Sciortino, "Explaining cold-pulse dynamics in tokamak plasmas using local turbulent transport models", Phys. Rev. Lett. 120, 075001 (2018). http://dx.doi.org/10.1103/PhysRevLett.120.075001

2. **P Rodriguez-Fernandez,** A E White, A J Creely, M J Greenwald, N T Howard, F Sciortino and J C Wright, "VITALS: A surrogate-based optimization framework for the accelerated validation of plasma transport codes", Fusion Technol. 74:1-2, 65-76 (2018). http://dx.doi.org/10.1080/15361055.2017.1396166

1. **P Rodriguez-Fernandez**, J E Rice, N M Cao, A J Creely, N T Howard, A E Hubbard, J H Irby and A E White, "On the correlation between "non-local" effects and intrinsic rotation reversals in Alcator C-Mod", Nucl. Fusion 57, 074001 (2017). http://dx.doi.org/10.1088/1741-4326/aa6e89

FIRST-AUTHOR CONFERENCE PROCEEDINGS

4. **P. Rodriguez-Fernandez**, N.T. Howard, A. Saltzman, S. Kantamneni, A.E. White, E. Delabie, B. Lomanowski, T.M. Biewer, J. Candy, C. Holland, M.F.F. Nave, J. Garcia, L. Lennholm and JET Contributors, "Core performance predictions with nonlinear gyrokinetics and implications to scope burning-plasma tokamaks", Proceedings of the 29th IAEA Fusion Energy Conference , IAEA-CN-326 TH P2-19 (2023).

3. **P. Rodriguez-Fernandez**, S.B. Ballinger, D.T. Garnier, R. Granetz, M.J. Greenwald, Z.S. Hartwig, N.T. Howard, J.W. Hughes, J.H. Irby, A.Q. Kuang, Y. Lin, E.S. Marmar, C. Rea, J.E. Rice, J.A. Stillerman, R. Sweeney, R.A. Tinguely, D.G. Whyte, J.C. Wright, A.J. Creely, D. Brunner, C.P. Chrobak, R.T. Mumgaard, M.L. Reinke, V. Riccardo, S.D. Scott, B.N. Sorbom, D.V. Yuryev, V.A. Izzo, "Overview of the SPARC physics basis towards the exploration of burning-plasma regimes in high-field, compact tokamaks", Proceedings of the 28th IAEA Fusion Energy Conference, IAEA-CN-286 OV/P-4.

2. **P Rodriguez-Fernandez**, A E White, N T Howard, J E Rice, F Sciortino, N M Cao, A J Creely, M J Greenwald, A E Hubbard, J W Hughes, J H Irby, X Yuan, B A Grierson, G M Staebler, C Angioni and E Fable, "Modeling of Cold-Pulse Propagation and Associated Phenomena in Tokamak Plasmas", Proceedings of 27th IAEA Fusion Energy Conference (Gandhinagar), IAEA-CN-258 EX/10-3.

1. **P Rodriguez-Fernandez** and G Persico, "Automatic design of ORC turbine profiles using evolutionary algorithms", ASME ORC 3rd Int'l Seminar on ORC Power Systems, Brussels (Belgium), Oct 2015. http://bit.ly/2ZqGcZx

CO-AUTHORED PUBLICATIONS

36. N. T. Howard, **P. Rodriguez-Fernandez**, C. Holland, T. Odstrcil, B. Grierson, F. Sciortino, G. McKee, Z. Yan, G. Wang, T. L. Rhodes, A. E. White, J. Candy, and C. Chrystal, "Simultaneous reproduction of experimental profiles, fluxes, transport coefficients, and turbulence characteristics via nonlinear gyrokinetic profile predictions in a DIII-D ITER similar shape plasma" Phys. Plasmas 31, 032501 (2024). https://doi.org/10.1063/5.0175792

35. D.J. Battaglia, T. Body, A.J. Creely, C. Hasse, J. Logan, R.T. Mumgaard, **P. Rodriguez-Fernandez**, N. Schneider, B.N. Sorbom, C. Tse, M. Vernacchia, A.O. Nelson, cfs-energy/cfspopcon: v4.0.0, Zenodo (2023). https://doi.org/10.5281/zenodo.10054880

34. R. Bielajew, U. Plank, G.D. Conway, A.E. Hubbard, **P. Rodriguez-Fernandez**, B. Vanovac, C. Yoo, A.E. White and the ASDEX Upgrade Team, "Edge radiated temperature fluctuations across confinement regime transitions in favorable and unfavorable drift configurations at ASDEX Upgrade" Nucl. Fusion 63 126022 (2023). https://doi.org/10.1088/1741-4326/acfcc9

33. C. Holland, E.M. Bass, D.M. Orlov, J. McClenaghan, B.C. Lyons, B.A. Grierson, X. Jian, N.T. Howard and **P. Rodriguez-Fernandez**, "Development of compact tokamak fusion reactor use cases to inform future transport studies" J. Plasma Phys., vol. 89, 905890418 (2023). https://doi.org/10.1017/S0022377823000843

32. P. A. Molina Cabrera, **P. Rodriguez-Fernandez**, T. Görler, M. Bergmann, K. Höfler, S. S. Denk, R. Bielajew, G. D. Conway, C. Yoo, A. E. White, and the ASDEX Upgrade Team, "Isotope effects on energy transport in the core of ASDEX-Upgrade tokamak plasmas: turbulence measurements and model validation" Physics of Plasmas 30, 082304 (2023). https://doi.org/10.1063/5.0143416

31. J.E. Rice, N.M. Cao, P.H. Diamond, M.J. Greenwald, A.E. Hubbard, E.S. Marmar, M.L. Reinke and **P. Rodriguez-Fernandez**, "Further Rotation Reversal Studies in C-Mod L-mode Plasmas" Physics of Plasmas 30, 082503 (2023). https://doi.org/10.1063/5.0159632

30. M.F.F. Nave, E. Delabie, J. Ferreira, J. Garcia, D. King, M. Lennholm, B. Lomanowski, F. Parra, **P.R. Fernandez**, J. Bernardo, M. Baruzzo, M. Barnes, F. Casson, J.C. Hillesheim, A. Hubber, E. Joffrin, A. Kappatou, C.F. Maggi, A. Mauriya, L. Meneses, M. Romanelli, F. Salzedas and JET Contributors, "Isotope effects on intrinsic rotation in hydrogen, deuterium and tritium plasmas", Nucl. Fusion 63 044002 (2023). https://doi.org/10.1088/1741-4326/acbb8c

29. S.M. Gonzalez de Vicente, D. Mazon, M. Xu, S.D. Pinches, R.M. Churchill, A. Dinklage, R. Fischer, A. Murari, **P. Rodriguez-Fernandez**, J.A. Stillerman, J. Vega and G. Verdoolaege, "Summary report of the 4th IAEA Technical Meeting on Fusion Data Processing, Validation and Analysis (FDPVA)", Nucl. Fusion (2023). https://doi.org/10.1088/1741-4326/acbfce

28. A. Di Siena, **P. Rodriguez-Fernandez**, N. T. Howard, A. Banon Navarro, R. Bilato, T. Görler, E. Poli, G. Merlo, J. Wright, M. J. Greenwald, and F. Jenko "Predictions of improved confinement in SPARC via energetic particle turbulence stabilization", Nucl. Fusion 63 036003 (2023). https://doi.org/10.1088/1741-4326/acb1c7

27. T. Luda, C. Angioni, M. G. Dunne, E. Fable, A. Kallenbach, N. Bonanomi, P. A. Schneider, M. Siccinio, G. Tardini, the ASDEX Upgrade Team, the EUROfusion MST1 Team, **P. Rodriguez-Fernandez**, J. W. Hughes, N. Howard, the Alcator C-Mod Team, L. Frassinetti, S. Saarelma, and JET contributors, "Validation of IMEP on Alcator C-Mod and JET-ILW ELMy H-mode plasmas", Plasma Phys. Control. Fusion 65 034001 (2023). https://doi.org/10.1088/1361-6587/acb011

26. S.J. Frank, C.J. Perks, A.O. Nelson, T. Qian, S. Jin, A. Cavallaro, A. Rutkowski, A. Reiman, J.P. Freidberg, **P. Rodriguez-Fernande**z and D. Whyte, "Radiative pulsed L-mode operation in ARC-class reactors", Nucl. Fusion 62 126036 (2022). https://doi.org/10.1088/1741-4326/ac95ac

25. R. Bielajew, G. D. Conway, M. Griener, T. Happel, K. Hofler, N. T. Howard, A. E. Hubbard, W. McCarthy, P. A. Molina Cabrera, T. Nishizawa, **P. Rodriguez-Fernandez**, D. Silvagni, B. Vanovac, D. Wendler, C. Yoo, A. E. White, and ASDEX Upgrade Team, "Edge turbulence measurements in L-mode and I-mode at ASDEX Upgrade", Physics of Plasmas 29, 052504 (2022). https://doi.org/10.1063/5.0088062

24. M. E. Fenstermacher for the DIII-D Team: J. Abbate, …, **P. Rodriguez-Fernandez**, … and M. Zuin, "DIII-D research advancing the physics basis for optimizing the tokamak approach to fusion energy", Nucl. Fusion 62 042024 (2022). https://doi.org/10.1088/1741-4326/ac2ff2

23. J. Mailloux, …, **P. Rodriguez-Fernandez**, …, and I Zychor, "Overview of JET results for 5ptimizing ITER operation", Nucl. Fusion 62 042026 (2022). https://doi.org/10.1088/1741-4326/ac47b4

22. U. Stroth, …, **P. Rodriguez-Fernandez**, …, and the EUROfusion MST1 Team, "Progress from ASDEX Upgrade experiments in preparing the physics basis of ITER operation and DEMO scenario development", Nucl. Fusion 62 042006 (2022). https://doi.org/10.1088/1741-4326/ac207f

21. G. M. Staebler, M. Knölker, P. B. Snyder, C. Angioni, E. Fable, T. Luda di Cortemiglia, C. Bourdelle, J. Garcia, J. Citrin, M. Marin, HT. Kim, J. Kinsey, CY. Lee, YS. Na, JM. Park, **P. Rodriguez-Fernandez** and M. Wu, "Advances in prediction of tokamak experiments with theory-based models", Nucl. Fusion 62 042005 (2022). https://doi.org/10.1088/1741-4326/ac1eaf

20. N. T. Howard, C. Holland, T. L. Rhodes, J. Candy, **P. Rodriguez-Fernandez**, M. Greenwald, A. E. White and F. Sciortino, "The role of ion and electron-scale turbulence in setting heat and particle transport in the DIII-D ITER baseline scenario", Nucl. Fusion 61 106002 (2021). https://doi.org/10.1088/1741-4326/ac1bc2

19. F. Sciortino, N. T. Howard, R. Reksoatmodjo, A. R. Foster, J. W. Hughes, E. S. Marmar, M. A. Miller., S. Mordijck, T. Odstrcil, T. Pütterich, M. L. Reinke, J. E. Rice and **P. Rodriguez-Fernandez**, "Experimental inference of neutral and impurity transport in

Alcator C-Mod using high-resolution X-ray and Ultra-Violet spectra", Nucl. Fusion 61 126060 (2021). https://doi.org/10.1088/1741-4326/ac32f2

18. N. T. Howard, **P. Rodriguez-Fernandez**, C. Holland, J. E. Rice, M. Greenwald, J. Candy, and F. Sciortino, "Gyrokinetic simulation of turbulence and transport in the SPARC tokamak", Physics of Plasmas 28, 072502 (2021). https://doi.org/10.1063/5.0047789

17. J. E. Rice, N. M. Cao, T. Tala, C. Chrystal, M. J. Greenwald, J. W. Hughes, E. S. Marmar, M. L. Reinke, **P. Rodriguez-Fernandez** and A. Salmi, "Dimensionless parameter scaling of intrinsic torque in C-Mod enhanced confinement plasmas", Nucl. Fusion 61, 026013 (2021). https://doi.org/10.1088/1741-4326/abcb26

16. A. J. Creely, M. J. Greenwald, S. B. Ballinger, D. Brunner, J. Canik, J. Doody, …, **P. Rodriguez-Fernandez**, …, et al., "Overview of the SPARC Tokamak", Journal of Plasma Physics 86(5), 865860502 (2020). https://doi.org/10.1017/S0022377820001257

15. J. W. Hughes, N. T. Howard, **P. Rodriguez-Fernandez**, A. J. Creely, A. Q. Kuang, P. B. Snyder, T. M. Wilks, R. Sweeney, and M. Greenwald. 2020. "Projections of H-Mode Access and Edge Pedestal in the SPARC Tokamak", Journal of Plasma Physics 86(5), 865860504 (2020). https://doi.org/10.1017/S0022377820001300

14. S. D. Scott, G. J. Kramer, E. A. Tolman, A. Snicker, J. Varje, K. Särkimäki, J. C. Wright, and **P. Rodriguez-Fernandez**, "Fast-Ion Physics in SPARC", Journal of Plasma Physics 86(5), 865860508 (2020). https://doi.org/10.1017/S0022377820001087

13. F. Sciortino, N. T. Howard, E. S. Marmar, T. Odstrcil, N. M. Cao, R. Dux, A. E. Hubbard, J. W. Hughes, J. H. Irby, Y. Marzouk, L. M. Milanese, M. L. Reinke, J. E. Rice and **P. Rodriguez-Fernandez**, "Inference of experimental radial impurity transport on Alcator C-Mod: Bayesian parameter estimation and model selection", Nucl. Fusion 60 126014 (2020). https://doi.org/10.1088/1741-4326/abae85

12. N. M. Cao, J. E. Rice, P. H. Diamond, A. E. White, M. A. Chilenski, P. C. Ennever, J. W. Hughes, J. Irby, M. L. Reinke, **P. Rodriguez-Fernandez**, and Alcator C-Mod Team, "Evidence and modeling of turbulence bifurcation in L-mode confinement transitions on Alcator C-Mod", Physics of Plasmas 27, 052303 (2020). https://doi.org/10.1063/1.5144444

11. A. J. Creely, L. M. Milanese, E. A. Tolman, J. H. Irby, S. B. Ballinger, S. Frank, A. Q. Kuang, B. L. Linehan, W. McCarthy, K. J. Montes, T. Mouratidis, J. F. Picard, **P. Rodriguez-Fernandez**, A. M. Rosenthal, A. J. Sandberg, F. Sciortino, R. A. Simpson, R. A. Tinguely, M. Zhou, and A. E. White, "Design study of a combined interferometer and polarimeter for a high-field, compact tokamak", Physics of Plasmas 27, 042516 (2020). https://doi.org/10.1063/1.5142638

10. T Fülop, P. Helander, O. Vallhagen, O. Embréus, L. Hesslow, P. Svensson, A. J. Creely, N. T. Howard and **P. Rodriguez-Fernandez**, "Effect of plasma elongation on current dynamics during tokamak disruptions", Journal of Plasma Physics, 86(1), 474860101 (2020). https://doi.org/10.1017/S002237782000001X

9. C Angioni, E Fable, F Ryter, **P Rodriguez-Fernandez** and T Putterich, "The local nature of the plasma response to cold pulses with electron and ion heating at ASDEX Upgrade", Nucl. Fusion 59, 106007 (2019). https://doi.org/10.1088/1741-4326/ab313f

8. N M. Cao, J E Rice, P H Diamond, A E White, S G Baek, M A Chilenski, J W Hughes, J Irby, M L Reinke, **P Rodriguez-Fernandez** and the Alcator C-Mod Team, "Hysteresis as a Probe of Turbulent Bifurcation in Intrinsic Rotation Reversals on Alcator C-Mod" Nucl. Fusion (2019). https://doi.org/10.1088/1741-4326/ab3b38

7. A J Creely, **P Rodriguez-Fernandez**, G D Conway, S J Freethy, N T Howard, A E White and the ASDEX Upgrade Team, "Criteria for the Importance of Multi-scale Interactions in Plasma Turbulent Transport Simulations", Plasma Phys. Control. Fusion 61, 085022 (2019). https://doi.org/10.1088/1361-6587/ab24ae

6. R A Tinguely, A Rosenthal, R Simpson, S B Ballinger, A J Creely, S Frank, A Q Kuang, B L Linehan, W McCarthy, L M Milanese, K J Montes, T Mouratidis, J F Picard, **P Rodriguez-Fernandez**, A J Sandberg, F Sciortino, E A Tolman, M Zhou, B N Sorbom, Z S Hartwig and A E White, "Neutron Diagnostics for the Physics of a High-Field, Compact, Q≥1 Tokamak", Fusion Eng. Des. 143, pp. 212-225 (2019). https://doi.org/10.1016/j.fusengdes.2019.03.148

5. G Persico, **P Rodriguez-Fernandez** and A Romei, "High-Fidelity Shape-Optimization of Non-Conventional Turbomachinery by Surrogate Evolutionary Strategies", ASME. J. Turbomach. 141(8), 081010-081010-11 (2019) http://dx.doi.org/10.1115/1.4043252

4. J Rice, F Rosmej, N Cao, M Chilenski, N Howard, A Hubbard, J Hughes, J Irby, Y Lin, **P Rodriguez-Fernandez**, S Wolfe, S Wukitch, M Bitter, L Delgado-Aparicio, K Hill and M Reinke, "X-ray Observations of Kβ Emission from Medium Z He-like Ions in C-Mod Tokamak Plasmas", J. Phys. B: At. Mol. Opt. Phys. 51, 035702 (2018). http://dx.doi.org/10.1088/1361-6455/aaa17f

3. N T Howard, C Holland, A E White, M J Greenwald, **P Rodriguez-Fernandez**, J Candy and A J Creely, "Multi-scale gyrokinetic simulations of an Alcator C-Mod, ELM-y H-mode plasma", Plasma Phys. Control. Fusion 60, 014034 (2017). http://dx.doi.org/10.1088/1361-6587/aa9148

2. A J Creely, N T Howard, **P Rodriguez-Fernandez**, N Cao, A E Hubbard, J W Hughes, J E Rice, A E White, J Candy, G M Staebler, G D Conway, S J Freethy and C Sung, "Validation of nonlinear gyrokinetic simulations of L- and I- mode plasmas on Alcator C-Mod", Phys. Plasmas 24, 0.56104 (2017). http://dx.doi.org/10.1063/1.4977466

1. B LaBombard, A Q Kuang, D Brunner, I Faust, R Mumgaard, M L Reinke, J L Terry, N Howard, J W Hughes, M Chilenski, Y Lin, E Marmar, J E Rice, **P Rodriguez-Fernandez**, G Wallace, D G White, S Wolfe and S Wukitch, "Impurity screening behavior of the high-field side scrape-off layer in near-double-null configurations: prospect for mitigating plasma-material interactions on RF actuators and first-wall components", Nucl. Fusion 57, 076021 (2017). http://dx.doi.org/10.1088/1741-4326/aa6dd2

CONTRIBUTIONS TO CONFERENCES

Invited and Distinguished Presentations at Conferences:

15. Invited Talk at 65th Annual Meeting of the APS Division of Plasma Physics, Denver (Colorado), Oct 30-Nov 3 2023.
"On the direct use of core non-linear gyrokinetic profile predictions for the planning of burning plasmas experiments"

14. Poster at 29th IAEA Fusion Energy Conference, London (UK), Oct 16-21 2023.
"Core performance predictions with nonlinear gyrokinetics and implications to scope burning-plasma tokamaks"

13. Invited Talk at 49th European Conference on Plasma Physics, Bordeaux (France), July 3-7 2023.
"Prediction of core kinetic profiles and burning plasma performance with high-fidelity gyrokinetic simulations in tokamaks"

12. Plenary Talk at US Transport Task Force Workshop, Madison (WI), May 2-5 2023.
"Modeling of burning plasma performance in SPARC via first-principles core turbulence simulations"

11. Invited Talk at 2nd Meta Adaptive Experimentation Workshop, New York (NY), April 10-11 2023.
"Optimization techniques to accelerate the realization of fusion energy"

10. Overview Poster at 28th IAEA Fusion Energy Conference, Nice (France), May 10-15 2021.
"Overview of the SPARC physics basis towards the exploration of burning-plasma regimes in high-field, compact tokamaks"

9. Invited Talk at 4th Asia-Pacific Conference on Plasma Physics, Virtual Meeting, October 26-31 2020.
"On the local nature of cold-pulse experiments in Alcator C-Mod, DIII-D and ASDEX Upgrade"

8. Invited Talk at 2nd International Conference of Data Driven Plasma Science, Marseille (France), May 13-17 2019.
"Surrogate-Based Optimization Techniques for the Validation of Plasma Transport Models"

7. Invited Talk at ITPA Transport and Confinement Topical Group Meeting Spring 2019, Austin (TX), March 25-27 2019.
"Multi-machine study of cold-pulse dynamics: Towards a local model for the temperature inversion effect".

6. Invited Talk at 60th Annual Meeting of the APS Division of Plasma Physics, Portland (OR), November 5-9 2018.
"Understanding cold-pulse dynamics in tokamak plasmas using local turbulent transport models".

5. Plenary Talk at 27th IAEA Fusion Energy Conference, Gandhinagar (India), October 22-27 2018.
"Explaining cold-pulse dynamics in tokamak plasmas using local turbulent transport models".

4. Invited Talk at 23rd Joint EU-US Transport Task Force Meeting, Sevilla (Spain), September 11-14 2018.
"Modeling of cold-pulse dynamics in Alcator C-Mod and DIII-D: A local turbulent transport approach".

3. Invited Talk at US Transport Task Force Workshop, San Diego (CA), May 8-1 2018.
"Prediction of cold-pulse dynamics in tokamak plasmas using quasilinear turbulent transport models".

2. Invited Talk at ITPA Transport and Confinement Topical Group Meeting Spring 2018, Daejeon (Republic of Korea), April 9-11.
"An introduction to VITALS: surrogate models to accelerate transport model validation".

1. Invited Talk at ITPA Transport and Confinement Topical Group Meeting Spring 2018, Daejeon (Republic of Korea), April 9-11.
"Modeling cold-pulse propagation in Alcator C-Mod plasmas using TGLF".

Invited Seminar Speaker and Lecturer:

35. Fireside chat for Richi Innovation Camp, Cambridge (MA), March 14th 2024.
"The promise of fusion energy at MIT"

34. Guest Lecturer at MIT Nuclear Science and Engineering (NSE), course 22.016 on Seminar in Fusion and Plasma Physics, Cambridge (MA), December 13th, 2023.
"Predicting core performance in burning plasmas: from empirical models to nonlinear simulations"

33. Seminar Speaker at Princeton Plasma Physics Laboratory (PPPL), Computational Sciences Department, Princeton (NJ), September 28th, 2023.
"Enabling multi-channel profile predictions with nonlinear gyrokinetics via surrogate-based optimization techniques"
32. Invited Speaker for UPM Tech Boston Program by Real Colegio Complutense and UPM, Cambridge (MA), July 13th 2023.
"Fusion Energy at MIT: Smaller, Cheaper, Faster"
31. Plasma Physics Colloquium Speaker at Institute for Theoretical Physics (IFT UAM/CSIC), Madrid (Spain), June 26th 2023.
"Fusion energy at MIT: from empirical to first-principles understanding of burning plasmas"
30. Invited Lecturer at Universidad Politécnica de Madrid – Nuclear Science graduate program, Madrid (Spain), June 6th 2023.
"Fusion Energy at MIT: Smaller, cheaper, faster"
29. Invited Speaker at Frontiers of Innovation & Entrepreneurship by MIT-Sloan/FRdP, Cambridge (MA), June 5th 2023.
"Fusion Energy at MIT: Smaller, Cheaper, Faster"
28. Seminar Speaker at MIT Plasma Science and Fusion Center, Cambridge (MA), March 3rd 2023.
"Enabling first-principles predictions of core performance in tokamaks with surrogate optimization techniques"
27. Plasma Physics Colloquium Speaker at Columbia University, New York (NY), February 17th 2023.
"Core transport and performance of burning plasmas in the SPARC tokamak"
26. Seminar Speaker at University of Sevilla, Sevilla (Spain), January 20th 2023.
"Energía de fusión en el MIT: El camino de los campos magnéticos de alta intensidad y el tokamak SPARC"
25. Colloquium Speaker at the Institute of Photonic Sciences, Barcelona (Spain), January 13th 2023.
"The high-field path to fusion energy and the SPARC tokamak"
24. Invited Panelist for Counting Stars Workshop by Online Youth Council on Science, Law & Sustainability, Virtual, December 15th 2022. "Contributions of Fusion Power to Global Climate Action"
23. Physics Colloquium Speaker at Wesleyan University, Middletown (CT), September 29th 2022.
"The high-field path to fusion energy and the SPARC tokamak"
22. Invited Speaker at Int'l Economics & Global Civil Society Workshop by Harvard/FRdP, Cambridge (MA), September 28th 2022
"Fusion Energy at MIT: Smaller, Cheaper, Faster"
21. Guest Fusion Lecturer at MIT Computational Physics School for Fusion Research, Cambridge (MA), August 22nd 2022.
"Optimization projects for the advancement of fusion energy"
20. Invited Speaker for Master on Leadership in Engineering & Architecture by UPM/FRdP, Cambridge (MA), July 11th 2022.
"Fusion Energy at MIT: Smaller, Cheaper, Faster"
19. Physics Colloquium Speaker at Universidad Nacional Autónoma de México, Mexico City (Mexico), June 1st 2022.
"The high-field path to fusion energy and the SPARC tokamak"
18. Invited Speaker for La Caixa Becarios Knowledge Day, Virtual, April 26th 2022.
"¿Qué es la energía de fusión? ¿Puede convertirse en una fuente alternativa de energía en los próximos años?"
17. Script Developer and Speaker in MIT PSFC Educational video (https://bit.ly/3wT8xvf), April 2022.
"Introduction to Fusion"
16. Engineering Colloquium Speaker at Universidad Nacional de La Plata, Buenos Aires (Argentina), October 15th 2021.
"La promesa y los avances en energía de fusión en el MIT"
15. Invited Lecturer at Universidad Politécnica de Madrid – Nuclear Science graduate program, Madrid (Spain), June 28th 2021.
"Fusion Energy at MIT: Smaller, cheaper, faster"
14. Seminar Speaker for Association of Spanish Scientists in Sweden, Virtual, June 16th 2021.
"Energía de fusión en el MIT: promesas y retos"
13. Plasma Physics Colloquium Speaker at University of Colorado Boulder, Boulder (CO), April 23rd 2021.
"Transport modeling and performance predictions for burning plasmas in the SPARC tokamak"
12. Plasma Physics Seminar Speaker at MIT Independent Activities Period, Cambridge (MA), January 15th 2021.
"The SPARC tokamak: towards a burning plasma in this decade"
11. Plasma Physics Seminar Speaker at University of Wisconsin-Madison, Madison (WI), October 5th 2020.
"Core transport model validation towards building the physics basis for the SPARC tokamak"
10. Frontiers of Plasma Physics Colloquium Speaker for Journal of Plasma Physics, Virtual, October 1st 2020.
"Predictions of core plasma performance for the SPARC tokamak"

9. Del Favero Lecturer for MIT Nuclear Science and Engineering, Cambridge (MA), December 5th 2019.
"Heating by Cooling: perturbing fusion plasmas to predict SPARC performance"
8. Magnetic Fusion Science Seminar Speaker at Princeton Plasma Physics Laboratory, Princeton (NJ), September 8th 2019.
"Integrated modeling and predict-first experiments of perturbative cold pulses in tokamak plasmas"
7. Invited Speaker at Call for Talent Workshop by Universidad-Empresa/FRdP, Cambridge (MA), June 27th 2019.
"Fusion Energy at MIT: Smaller, Cheaper, Faster"
6. Invited Speaker at Frontiers of Innovation & Entrepreneurship by MIT-Sloan/FRdP, Cambridge (MA), June 25th 2019.
"Fusion Energy at MIT: Smaller, Cheaper, Faster"
5. Invited Speaker at Call for Talent Workshop by Universidad-Empresa/FRdP, Cambridge (MA), November 29th 2018.
"Fusion Energy at MIT: Smaller, Cheaper, Faster"
4. Fusion Seminar Speaker for Dutch Institute of Fundamental Energy Research, Eindhoven (Netherlands), August 14th 2018.
"Validation of TGLF in steady-state and perturbative experiments""
3. DIII-D Friday Science Meeting Speaker at General Atomics, San Diego (CA), April 27th 2018.
"Understanding Cold-Pulse Dynamics in Tokamak Plasmas Using Local Turbulent Transport Models"
2. Signature Presenter at MIT Nuclear Science and Engineering Graduate Research Expo, March 20th 2018.
"Integrated modeling simulations answer 20-year-old question in fusion research"
1. Speaker at 2nd Joint Meeting of Spanish Scientists in US, Cambridge (MA), June 5th 2017.
"Fusion energy: promise, challenges and perspectives"

Contributed Talks and Posters at Conferences:

21. *(upcoming)* Oral Presentation at 33rd US Transport Task Force Meeting, Asheville (NC), April 9-12 2024.
"Predictions of Core Transport and Performance in SPARC First-Campaign Plasmas with Nonlinear CGYRO"
20. Oral Presentation at 1st SMARTS-FRONTIERS SciDac Workshop, San Diego (CA), February 27-29 2024. "PORTALS: introduction, status and plans"
19. Oral Presentation at IAEA TM on Fusion Data Processing, Validation and Analysis, Ghent (Belgium), June 12-15 2023. "Bayesian optimization techniques to accelerate burning-plasma and reactor simulations"
18. Oral Presentation at 4th International Conference of Data Driven Plasma Science, Okinawa (Japan), April 6-21 2023. "Leveraging surrogate-based optimization to enable profile predictions with nonlinear turbulence codes"
17. Oral Presentation at 64th Annual Meeting of the APS Division of Plasma Physics, Spokane (WA), October 17-21 2022.
"First-principles performance prediction of burning plasmas with self-consistent kinetic profiles"
16. Oral Presentation at 31st US Transport Task Force Meeting, Santa Rosa (CA), April 5-8 2022.
"Towards multi-channel profile predictions with full nonlinear gyrokinetic simulations in burning plasmas"
15. Oral Presentation at 63rd Annual Meeting of the APS Division of Plasma Physics, Pittsburgh (PA), November 8-12 2021.
"Physics exploration of scenarios towards breakeven and burning plasmas in the SPARC tokamak"
14. Oral Presentation at 25th Joint EU-US Transport Task Force Meeting, Virtual meeting, September 6-10 2021.
"Bayesian optimization and automatic differentiation techniques towards full nonlinear predictions of tokamak performance"
13. Poster at 47th EPS Conference on Plasma Physics, Virtual meeting, June 21-25 2021.
"Optimization of fusion reactor scenarios with high-fidelity physics models"
12. Oral Presentation at 30th US Transport Task Force Workshop, Virtual meeting, Apr 19-23 2021.
"Predict-first modeling of SPARC burning plasma: On the use of integrated simulations to inform the design of a new machine"
11. Oral Presentation at 62nd Annual Meeting of the APS Division of Plasma Physics, Virtual meeting, November 9-13 2020.
"Empirical and physics-based predictions of core plasma performance for the SPARC tokamak"
10. Oral Presentation at 61st Annual Meeting of the APS Division of Plasma Physics, Ft. Lauderdale (FL), October 21-25 2019.
"Physics-Based Integrated Modeling and Exploration of Fusion Performance in SPARC Plasmas"
9. Poster at 46th EPS Conference on Plasma Physics, Milan (Italy), July 8-12 2019.
"Core transport studies in tokamak plasmas via surrogate-based optimization techniques"
8. Oral Presentation at 60th Annual Meeting of the APS Division of Plasma Physics, Portland (OR), November 5-9 2018.
"VITALS: Surrogate Models and Genetic Algorithms to Accelerate Transport Model Validation"
7. Oral Presentation at 45th EPS Conference on Plasma Physics, Prague (Czech Republic), July 2-6 2018.
"Explaining cold-pulse dynamics in tokamak plasmas using local turbulent transport models"

6. Poster at 59th Annual Meeting of the APS Division of Plasma Physics, Milwaukee (WI), Oct 23-27 2017.
   "Validation of TGLF in C-Mod and DIII-D using machine learning and integrated modeling tools"
5. Oral Presentation at 2nd IAEA TM on Fusion Data Processing, Validation and Analysis, Cambridge (MA), May 30 – Jun 2 2017.
   "Validation of quasilinear transport codes via machine learning strategies"
4. Poster at US Transport Task Force Workshop, Williamsburg (VA), Apr 25-28 2017.
   "New modeling approaches for cold-pulse and heat-pulse propagation experiments in Alcator C-Mod and DIII-D"
3. Oral Presentation at 58th Annual Meeting of the APS Division of Plasma Physics, San Jose (CA), October 31–November 4 2016.
   "Perturbative transport modeling and comparison to cold-pulse & heat-pulse propagation experiments in C-Mod and DIII-D"
2. Oral Presentation at Gyrokinetic Theory Working Group Meeting, Madrid (Spain), September 26-30 2016.
   "Perturbative transport modeling and dependence of temperature inversions on plasma parameters in Alcator C-Mod"
1. Poster at US Transport Task Force Workshop, Denver (CO), March 29-31 2016.
   "Dependence of non-local effects on plasma parameters during cold-pulse experiments in Alcator C-Mod"

MEDIA INTERVIEWS AND APPEARANCES

39. *(upcoming)* Podcast on Fusion Energy for Amautas platform (science outreach in Spanish), 2024.
38. *(upcoming)* Podcast on Fusion Energy for Buscando Vocaciones ("Seeking Vocations") platform, 2024.
37. Written interview for Folha de S. Paulo (https://bit.ly/3TANyYd), March 2024.
36. TV interview (live) for TVG news "Atmosféricos" (https://bit.ly/3I4mPhz), February 2024.
35. Podcast interview for WIRED 5-level video series (https://bit.ly/44Zp52T), July 2023.
34. Witten interview for NYU applied physics student, published via NYU's Mercer Street, March 2023.
33. Interview (treated as anonymous) for Sociological Study on the community of fusion scientists, March 2023.
32. Podcast interview for Bankinter Foundation (https://bit.ly/3Jy7FBE), March 2023.
31. TV interview for RTVE "10.000 días" documentary (https://bit.ly/3TskLoA), February 2023.
30. Podcast interview for RTVE "10.000 días" documentary (https://spoti.fi/42j0QMG), February 2023.
29. TV interview for Canal24h RTVE – "Objetivo Planeta" (https://bit.ly/3JL46YX), January 2023.
28. TV interview for RTVE Promotional Event (https://bit.ly/3lnMY3c), January 2023.
27. Written interview for ABC Newspaper – XL Semanal (https://bit.ly/3lqvwen), January 2023.
26. Written interview for ABC Newspaper (https://bit.ly/3JkK6vQ), December 2022.
25. Written interview for El Confidencial Newspaper (https://bit.ly/3luQOaB), December 2022.
24. Wrote Epilogue for "Geoestrategia de la Bombilla" book (Geostrategy of the light bulb) (https://amzn.to/3Y5W83h), Nov 2022
23. Written interview for El Confidencial Newspaper (https://bit.ly/42j0FB0), October 2022.
22. Written interview for El Español Newspaper (https://bit.ly/3YYffLx), September 2022.
21. Written interview for Foro Nuclear – "Featured Voices" (https://bit.ly/3Z4CvYk), September 2022
20. Written interview for El Español Newspaper (https://bit.ly/42iTHvL), September 2022.
19. Written interview for ABC Newspaper – XL Semanal (https://bit.ly/3JLnq9x), January 2022.
18. Radio interview for Radio3 RTVE (https://bit.ly/3JL2iz9), October 2021.
17. Written interview for Spanish Nuclear Society "Nucleares por el Mundo" (https://bit.ly/3YZmUZT), September 2021.
16. Radio interview for Onda Cero (https://bit.ly/3TtfDQP), February 2021.
15. Written interview for El Mundo Newspaper (https://bit.ly/3Lx2T9N), January 2021.
14. Radio interview by Aragón Radio (https://bit.ly/3LB9sbw), January 2021
13. Podcast interview by Youtube Science Channel – "Date un Vlog" (https://bit.ly/3YYeQJ1 , January 2021.

12. Written article by Forbes Spain associated with my 30-Under-30 appointment (https://bit.ly/2JLSJEB), December 2020. *(mentioned by MIT Alumni News, PSFC News, NSE News)*
11. Written interview by 20minutos Newspaper (https://bit.ly/3ZX6mDc), October 2020.
10. Invited article for Cambridge Blog associated with release of SPARC Physics Basis (https://bit.ly/36Uv6mW), September 2020.
9. Interviews (treated as anonymous) for Anthropology Study on fusion energy research, June 2020.
8. Invited article for Spanish Nuclear Society (https://bit.ly/40hFehT), February 2020.
7. MIT News press release associated with my "Del Favero" prize (https://bit.ly/3gExeAq), November 2019. *(picked up by PSFC News, NSE News, Phys.org, and DOE Office of Science)*
6. TV interview by Telemadrid – "Madrileños por el Mundo" (https://bit.ly/401TJqn), October 2019.
5. ETSII-UPM News press release associated with my "Young Engineer" award (https://bit.ly/3mZnauA), July 2018.
4. Radio interview by Onda Madrid (https://bit.ly/3LCq9nb), May 2018.
3. TV interview by La Sexta – "Laboratorio del Futuro" (http://bit.ly/321MyQz), May 2018.
2. Written interview by Xataka (http://bit.ly/2ZrxRoh), April 2018.
1. MIT News press release associated with Physical Review Letters article (https://bit.ly/3ch4mgS), February 2018. *(picked up by PSFC News, NSE News, ITER News, The Energy Collective, EuropaPress, Tribuna, Xataka, Heraldo…)*