## MDP Management

1. S.A. Gourlay, S.O. Prestemon (LBNL), A.V. Zlobin, L. Cooley (FNAL) D. Larbalestier (FSU-NHMFL), “The U.S. Magnet Development Program Plan”, 16-AT-2934, LBNL-100646, 2016/6/1.
2. Prestemon, S. *et al.* The 2020 Updated Roadmaps for the US Magnet Development Program. *Arxiv* (2020).

## Nb3Sn magnets

1. Rochepault, E., Felice, H., Ferracin, P., Bermudez, S. I. & Lorin, C. The Use of Grading in Nb3Sn High-Field Block-Coil Dipoles. *Ieee T Appl Supercon* **31**, 1–10 (2021).
2. Zlobin, A. V. *et al.* Reassembly and Test of High-Field Nb3Sn Dipole Demonstrator MDPCT1. *Ieee T Appl Supercon* **31**, 1–6 (2020). IEEE TAS, Vol. 31, Issue 5, 2021.
3. J. DiMarco, M. Baldini, E. Barzi, V. Kashikhin, I. Novitski, T. Strauss, M. Tartaglia, G. Velev, A. Zlobin, “Field Measurement Results of the 15 T Nb3Sn Dipole Demonstrator MDPCT1b,” IEEE TAS, Vol. 31, Issue 5, 2021.
4. Vallone, G. *et al.* Magnetic and Mechanical Analysis of a Large Aperture 15T Cable Test Facility Dipole Magnet. *Ieee T Appl Supercon* **31**, 1–6 (2020).
5. Velev, G. V. *et al.* Design and Construction of a High Field Cable Test Facility at Fermilab. *Ieee T Appl Supercon* **31**, 1–4 (2020).
6. Troitino, J. F. *et al.* 3-D Thermal-Electric Finite Element Model of a Nb3Sn Coil During a Quench. *Ieee T Appl Supercon* **29**, 1–6 (2019).
7. Orozco, C., Carmichael, J., Novitski, I., Stoynev, S. & Zlobin, A. V. Assembly and Tests of Mechanical Models of the 15-T Nb3Sn Dipole Demonstrator. *Ieee T Appl Supercon* **29**, 1–4 (2019).
8. Montenero, G. *et al.* Coil Manufacturing Process of the First 1-m-Long CantedCosineTheta (CCT) Model Magnet at PSI. *Ieee T Appl Supercon* **29**, 1–6 (2019).
9. Zlobin, A. V. *et al.* Development and First Test of the 15 T Nb3Sn Dipole Demonstrator MDPCT1. *Ieee T Appl Supercon* **30**, 1–5 (2019).
10. Araujo, D. M. *et al.* Magnetic and Mechanical 3-D Modelling of a 15 T Large Aperture Dipole Magnet. *Ieee T Appl Supercon* **30**, 1–5 (2019).
11. Gao, J., Auchmann, B., Brouwer, L., Pautz, A. & Sanfilippo, S. Modeling of Quench Protection Concepts for Canted-Cosine-Theta Type High-Field Magnets. *Ieee T Appl Supercon* **30**, 1–5 (2019).
12. “Nb3Sn Accelerator Magnets – designs, technologies, and performance”, eds - D. Schoerling and A.V. Zlobin, ISBN 978-3-030-16117-0, Springer, 2019.
    1. A.V. Zlobin and D. Schoerling, “Superconducting magnets for accelerators”, Ch. 1., in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp.3-22
    2. E. Barzi and A.V. Zlobin, “Nb3Sn wires and cables for high-field accelerator magnets”, Ch. 2, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. 23-52
    3. L. Rossi and A.V. Zlobin, “Nb3Sn accelerator magnets: The early days (1960s–1980s)”, Ch. 3, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. 53-84
    4. S. Caspi, “LBNL Cos-theta Nb3Sn Dipole Magnet D20”, Ch.6, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. -133-156
    5. A.V. Zlobin, “Cos-theta Nb3Sn dipole for a Very Large Hadron Collider”, Ch. 7, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. -157-192
    6. A.V. Zlobin, “Nb3Sn 11 T Dipole for the High Luminosity LHC (FNAL)”, Ch. 8, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. 193-222
    7. G. Sabbi, “The HD Block-Coil Dipole Program at LBNL”, Ch.11, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. 285-310
13. Gourlay, “The LBNL Racetrack Dipole and Sub-scale Magnet Program”, Ch.13, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. 343-370
14. R. Gupta, “Common-Coil Nb3Sn Dipole Program at BNL”, Ch. 14, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. 371-394
15. A.V. Zlobin, “Common-coil dipole for a Very Large Hadron Collider”, Ch. 15, in Nb3Sn Accelerator Magnets – designs, technologies, and performance, eds. D. Schoerling and A.V. Zlobin, Springer, 2019, pp. 395-423
16. Schoerling, D. *et al.* The 16 T Dipole Development Program for FCC and HE-LHC. *Ieee T Appl Supercon* **29**, 1–9 (2019).
17. Stoynev, S. *et al.* Analysis of Nb3Sn Accelerator Magnet Training. *Ieee T Appl Supercon* **29**, 1–6 (2018).
18. Vallone, G., Bordini, B. & Ferracin, P. Computation of the Reversible Critical Current Degradation in Nb $\_{3}$Sn Rutherford Cables for Particle Accelerator Magnets. *Ieee T Appl Supercon* **28**, 1–6 (2018).
19. Kokkinos, C. *et al.* FEA Model and Mechanical Analysis of the Nb3Sn 15-T Dipole Demonstrator. *Ieee T Appl Supercon* **28**, 1–6 (2018).
20. Wang, X. *et al.* Field Quality of HD3A Nb$\_3$Sn Dipole Magnet Based on Block Design. *Ieee T Appl Supercon* **29**, 1–7 (2018).
21. Sarasola, X. *et al.* Magnetic and Mechanical Design of a 15-T Large Aperture Dipole Magnet for Cable Testing. *Ieee T Appl Supercon* **29**, 1–5 (2018).
22. Juchno, M. *et al.* Mechanical Utility Structure for Testing High Field Superconducting Dipole Magnets. *Ieee T Appl Supercon* **29**, 1–4 (2018).
23. Caspi, S. *et al.* Design of a Canted-Cosine-Theta Superconducting Dipole Magnet for Future Colliders. *Ieee T Appl Supercon* **27**, 1 5 (2017).
24. Ravaioli, E. & Sabbi, G. Design of a Compact 16 T Common-Coil Dipole for Future Colliders. *Ieee T Appl Supercon* **28**, 1–5 (2017).
25. Montenero, G. *et al.* Mechanical Structure for the PSI Canted-Cosine-Theta (CCT) Magnet Program. *Ieee T Appl Supercon* **28**, 1–5 (2017).
26. Tommasini, D. *et al.* Status of the 16 T Dipole Development Program for a Future Hadron Collider. *Ieee T Appl Supercon* **28**, 1–5 (2017).
27. Li, P., Krave, S. & Zlobin, A. Study of Thermomechanical Properties of The Epoxy-Impregnated Cable Composite for a 15 T Nb3Sn Dipole Demonstrator. *Iop Conf Ser Mater Sci Eng* **279**, 012020 (2017).
28. Sabbi, G. *et al.* Design Study of a 16-T Block Dipole for FCC. *Ieee T Appl Supercon* **26**, 1–5 (2016).
29. Sabbi, G. *et al.* Performance Characteristics of <inline-formula> <img src="/images/tex/809.gif" alt="\hbox {Nb}\_{3}\hbox {Sn}"> </inline-formula> Block-Coil Dipoles for a 100 TeV Hadron Collider. *Ieee T Appl Supercon* **25**, 1 7 (2015).
30. V.V. Kashikhin, N. Andreev, E. Barzi, I. Novitski, A.V. Zlobin, “Magnetic and structural design of a 15 T Nb3Sn accelerator dipole model”, CEC/ICMC2015, Tucsan (AR), June 2015. IOP Conference Series: Materials Science and Engineering, v.101, issue 1, p.012055, 2015
31. I. Novitski, N. Andreev, E. Barzi, J. Carmichael, V. V. Kashikhin, D. Turrioni, M. Yu, and A. V. Zlobin, “Development of a 15 T Nb3Sn Accelerator Dipole Demonstrator at Fermilab”, IEEE Trans. on Appl. Supercond., Vol. 26, Issue 3, June 2016, 4001007.
32. L. Bottura, S. Gourlay, A. Yamamoto, A.V. Zlobin, “Superconducting Magnets for Particle Accelerators”, IEEE Trans. on Nuclear Science, vol. 63, number 2, April 2016, pp.751-776.
33. M. Juchno, L. Brouwer, S. Caspi, A. Hafalia, I. Novitski, S. Prestemon, A. Zlobin, “Mechanical Utility Structure for Testing High Field Superconducting Dipole Magnets,”, IEEE Trans. on Appl. Supercond., Vol. 29, Issue 5, August 2019, 4001604
34. D. Schoerling, D. Arbelaez, B. Auchmann, M. Bajko, A. Ballarino, E. Barzi, G. Bellomo, M. Benedikt, S. Izquierdo Bermudez, B. Bordini, L. Bottura, L. Brouwer, P. Bruzzone, M. Buzio, B. Caiffi, S. Caspi, A. Chakrabort, E. Coatanea, G. de Rijk, M. Dhalle, M. Durante, P. Fabbricatore, S. Farinon, H. Felice, A Fernan-dez, I.S. Fernandez, P. Gao, B. Gold, T. Gortsas, S. Gourlay, M. Juchno, V. Kashikhin, C. Kokkinos, S. Kok-kinos, K. Koskinen, F. Lackner, C. Lorin, K. Loukas, A.M. Louzguiti, K. Lyytikainen, M. S. Mariotto, Martchevsky, G. Montenero, J. Munilla, I. Novitski, T. Ogitsu, A. Pampaloni, J.C. Perez, C. Pes, C. Petrone, D. Polyzos, S. Prestemon, M. Prioli, A.M. Ricci, J.M. Rifflet, E. Rochepault, S. Russenschuck, T. Salmi, I.A. San-tillana, F. Savary, C. Scheuerlein, M. Segreti, C. Senatore, M. Sorbi, M. Statera, A. Stenvall, L. Tavian, T. Ter-voort, D. Tommasini, F. Toral, R. Valente, G. Velev, A.P. Verweij, S. Wessel, F. Wolf, F. Zimmermann, A.V. Zlobin, “The 16 T Dipole Development Program for FCC and HE-LHC,” IEEE Trans. on Appl. Supercond., Vol. 29, Issue 5, August 2019, 4003109
35. A.V. Zlobin, I. Novitski, V.V. Kashikhin, E. Barzi, J. Carmichael, S. Caspi, G. Chlachidze, S. Krave, C. Orozco, D. Schoerling, S. Stoynev, D. Tommasini, D. Turrioni, “Development and First Test of the 15 T Nb3Sn Dipole Demonstrator MDPCT1”, IEEE Transactions on Applied Superconductivity, Volume 30, Issue 4, 2020, 10.1109/TASC.2020.2967686
36. T. Strauss, E. Barzi, J. DiMarco, V.V. Kashikhin, I. Novitski, M. Tartaglia, G. Velev, A.V. Zlobin, “First field measurements of the 15 T Nb3Sn Dipole Demonstrator MDPCT1”, IEEE Transactions on Applied Superconductivity, Volume 30, Issue 4, 2020, 10.1109/TASC.2020.2967686

## HTS Magnets

1. Wang, X. *et al.* Development and performance of a 2.9 Tesla dipole magnet using high-temperature superconducting CORC wires. *Supercond Sci Technology* **34**, 015012 (2021).
2. Gavrilin, A. V. *et al.* Quench and Stability Modelling of a Metal-Insulation Multi-Double-Pancake High-Temperature-Superconducting Coil. *IEEE Transactions on Applied Superconductivity* **31**, 1–7 (2021).
3. Fajardo, L. G. *et al.* First demonstration of high current canted-cosine-theta coils with Bi-2212 Rutherford cables. *Supercond Sci Technology* **34**, 024001 (2021).
4. Zlobin, A. V., Novitski, I. & Barzi, E. Conceptual Design of a HTS Dipole Insert Based on Bi2212 Rutherford Cable. *Instruments* **4**, 29 (2020).
5. Shen, T. & Fajardo, L. G. Superconducting Accelerator Magnets Based on High-Temperature Superconducting Bi-2212 Round Wires. *Instruments* **4**, 17 (2020).
6. Bai, H. *et al.* The 40 T Superconducting Magnet Project at the National High Magnetic Field Laboratory. *IEEE Transactions on Applied Superconductivity* **30**, 1–5 (2020)
7. Bosque, E. S., Kim, Y., Trociewitz, U. P., English, C. L. & Larbalestier, D. C. System and method to manage high stresses in bi-2212 wire wound compact superconducting magnets. (2019).
8. Wang, X. *et al.* A 1.2 T canted cosθ dipole magnet using high-temperature superconducting CORC® wires. *Supercond Sci Technology* **32**, 075002 (2019).
9. Wang, X., Gourlay, S. A. & Prestemon, S. O. Dipole Magnets above 20 Tesla: Research Needs for a Path via High-Temperature Superconducting REBCO Conductors. *Instruments* **3**, 62 (2019).
10. Fajardo, L. G. *et al.* Fabrication of Bi-2212 Canted-Cosine-Theta Dipole Prototypes. *Ieee T Appl Supercon* **29**, 1–5 (2019).
11. Gupta, R. *et al.* New Approach and Test Facility for High-Field Accelerator Magnets R&D. *Ieee T Appl Supercon* **30**, 1–6 (2019).
12. Shen, T. *et al.* Stable, predictable and training-free operation of superconducting Bi-2212 Rutherford cable racetrack coils at the wire current density of 1000 A/mm2. *Sci Rep-uk* **9**, 10170 (2019).
13. Zhang, K. *et al.* 3D Mechanical Design and Stress Analysis of 20 T Common-Coil Dipole Magnet for SppC. *Ieee T Appl Supercon* **28**, 1–5 (2018).
14. Wang, X. *et al.* A viable dipole magnet concept with REBCO CORC® wires and further development needs for high-field magnet applications. *Supercond Sci Technology* **31**, 045007 (2018).
15. Fajardo, L. G. *et al.* Designs and Prospects of Bi-2212 Canted-Cosine-Theta Magnets to Increase the Magnetic Field of Accelerator Dipoles Beyond 15 T. *Ieee T Appl Supercon* **28**, 1–5 (2018).
16. Shen, T. *et al.* Stable, predictable and training-free operation of superconducting Bi-2212 Rutherford cable racetrack coils at the very high wire current density of more than 1000 A/mm2. (2018).
17. Zhang, K. *et al.* Tripled critical current in racetrack coils made of Bi-2212 Rutherford cables with overpressure processing and leakage control. *Supercond Sci Technology* **31**, 105009 (2018).

## Technology

1. Krave, S., Shen, T. & Haight, A. Exploring New Resin Systems for Nb3Sn Accelerator Magnets. *Ieee T Appl Supercon* **31**, 1–4 (2021).
2. D. Davis, T. Shen, M. Marchevsky, and E. Ravaioli, “Stray-Capacitance as a Simple Tool for Monitoring and Locating Heat Generation Demonstrated in Three Superconducting Magnets”, *IEEE Trans. Appl. Supercond. 31,* 4604111 (2021) doi: 10.1109/TASC.2021.3094769
3. Teyber, R., Brouwer, L., Qiang, J. & Prestemon, S. Inverse Biot–Savart Optimization for Superconducting Accelerator Magnets. *Ieee T Magn* **57**, 1–7 (2021).
4. Marchevsky, M. Quench Detection and Protection for High-Temperature Superconductor Accelerator Magnets. *Instruments* **5**, 27 (2021).
5. Bang, J. *et al.* A Numerical Method to Calculate Spatial Harmonic Coefficients of Magnetic Fields Generated by Screening Currents in an HTS Magnet. *IEEE Transactions on Applied Superconductivity* **30**, 1–5 (2020).
6. Kovacs, C. J., Barzi, E. Z., Turrioni, D., Zlobin, A. V. & Marchevsky, M. A cable-scale experiment to explore new materials for optimizing superconductor accelerator magnets. *Cryogenics* **106**, 103025 (2020).
7. Vallone, G. *et al.* A methodology to compute the critical current limit in Nb 3 Sn magnets. *Supercond Sci Technology* (2020) doi:10.1088/1361-6668/abc56b.
8. Ravaioli, E. *et al.* A new quench detection method for HTS magnets: stray-capacitance change monitoring. *Phys Scripta* **95**, 015002 (2020).
9. Teyber, R., Marchevsky, M., Prestemon, S., Weiss, J. & Laan, D. van der. CORC ® cable terminations with integrated Hall arrays for quench detection. *Supercond Sci Technology* **33**, 095009 (2020).
10. Reed Teyber, Lucas Brouwer, Arno Godeke and Soren Prestemon, Thermoeconomic cost optimization of superconducting magnets for proton therapy gantries, 21 August 2020 IOP Publishing Ltd, [Superconductor Science and Technology](https://iopscience.iop.org/journal/0953-2048), [Volume 33](https://iopscience.iop.org/volume/0953-2048/33), [Number 10](https://iopscience.iop.org/issue/0953-2048/33/10)
11. Zhang, K., Hellmann, S., Calvi, M., Schmidt, T. & Brouwer, L. Magnetization Current Simulation of High-Temperature Bulk Superconductors Using the ANSYS Iterative Algorithm Method. *Ieee T Appl Supercon* **31**, 1–6 (2020).
12. Weiss, J. D., Teyber, R., Marchevsky, M. & Laan, D. C. van der. Quench detection using Hall sensors in high-temperature superconducting CORC-based cable-in-conduit-conductors for fusion applications. *Supercond Sci Technology* **33**, 105011 (2020).
13. Davis, D., Shen, T., Marchevsky, M. & Ravaioli, E. Stray-Capacitance As a Simple Tool for Monitoring and Locating Heat Generation Demonstrated in Three Superconducting Magnets. *Ieee T Appl Supercon* **31**, 1–11 (2020).
14. Martnez, A. C. A., Ji, Q., Prestemon, S. O., Wang, X. & Cuna, G. H. I. M. An Electric-Circuit Model on the Inter-Tape Contact Resistance and Current Sharing for REBCO Cable and Magnet Applications. *Ieee T Appl Supercon* **30**, 1–5 (2019).
15. Marchevsky, M., Arbelaez, D. & Prestemon, S. Structural Diagnostics of Superconducting Magnets Using Diffuse Field Ultrasound. *Ieee T Appl Supercon* **30**, 1–4 (2019).
16. Brouwer, L., Arbelaez, D., Auchmann, B., Bortot, L. & Stubberud, E. User defined elements in ANSYS for 2D multiphysics modeling of superconducting magnets. *Supercond Sci Technology* **32**, 095011 (2019).
17. C. Kovacs, M.D. Sumption, E. Barzi, A.V. Zlobin, and M. Majoros, “A Tear-Drop Bifilar Sample Holder for Full Excitation and Stability Studies of HTS Cables at 4.2 K Using a Superconducting Transformer,” IEEE Trans. on Appl. Supercond., Vol. 29, Issue 5, August 2019, 4801305
18. Cho, M. *et al.* Combined Circuit Model to Simulate Post-Quench Behaviors of No-Insulation HTS Coil. *IEEE Transactions on Applied Superconductivity* **29**, 1–5 (2019).
19. E. Barzi, C. Franceschelli, I. Novitski, F. Sartori, and A.V. Zlobin, “Measurements and Modelling of Mechanical Properties of Nb3Sn Strands, Cables and Coils,” IEEE Trans. on Appl. Supercond., Vol. 29, Issue 5, August 2019, 8401808
20. Marchevsky, M., Hershkovitz, E., Wang, X., Gourlay, S. A. & Prestemon, S. Quench Detection for High-Temperature Superconductor Conductors Using Acoustic Thermometry. *Ieee T Appl Supercon* **28**, 1–5 (2018).
21. Ravaioli, E., Martchevskii, M., Sabbi, G., Shen, T. & Zhang, K. Quench Detection Utilizing Stray Capacitances. *Ieee T Appl Supercon* **28**, 1–5 (2018).
22. Marchevsky, M. & Gourlay, S. A. Acoustic thermometry for detecting quenches in superconducting coils and conductor stacks. *Appl Phys Lett* **110**, (2017).
23. M. Marchevsky, G. Sabbi, S. Prestemon, T. Strauss and G. Chlachidze, Magnetic Quench Antenna for MQXF quadrupoles”*,* IEEE Trans. Appl. Supercond., 27, 9000505 (2017), 10.1109/TASC.2016.2642983
24. Brouwer, L., Arbelaez, D., Caspi, S., Marchevsky, M. & Prestemon, S. Improved Modeling of Canted&#x2013;Cosine&#x2013;Theta Magnets. *Ieee T Appl Supercon* **28**, 1–6 (2018).
25. Pei Li, Steve Krave, Alexander Zlobin, “Study of Thermomechanical Properties of The Epoxy-Impregnated Cable Composite for a 15 T Nb3Sn Dipole Demonstrator,” IOP Conf. Series: Materials Science and Engineering 279 (2017) 012020 doi:10.1088/1757-899X/279/1/012020

## Materials

1. Pong, I. *et al.* Cable Design and Development for the High-Temperature Superconductor Cable Test Facility Magnet. *Ieee T Appl Supercon* **31**, 1–5 (2021).
2. Oz, Y. *et al.* Conundrum of strongly coupled supercurrent flow in both under- and overdoped Bi-2212 round wires. *Phys Rev Mater* **5**, 074803 (2021).
3. Hahn, S. & Larbalestier, D. Feedback control for no-insulation high-temperature superconducting magnet. (2021).
4. Barua, S. *et al.* Critical Current Distributions of Recent Bi-2212 Round Wires. *Ieee T Appl Supercon* **31**, 1–6 (2021).
5. Kim, S. & Larbalestier, D. C. Influence of strain-driven segregation in low-angle grain boundaries on critical current density of Y0.9Nd0.1Ba2Cu3O7-d. *Supercond Sci Technology* **34**, 025008 (2021).
6. Tarantini, C. *et al.* Origin of the enhanced Nb3Sn performance by combined Hf and Ta doping. *Sci Rep-uk* **11**, 17845 (2021).
7. Barzi, E. Research and Development of Nb3Sn Wires and Cables for High-Field Accelerator Magnets. *Video Proc Adv Mater* **2**, Article ID 2021-02142-Article ID 2021-02142 (2021).
8. E. Barzi, I. Novitski, A. Rusy, D. Turrioni, I. Novitsky, A.V. Zlobin, X. Peng, M. Tomsic, “Development and Test of Nb3Sn Rutherford cables with High Heat Capacity”, IEEE TAS, Vol. 31, Issue 5, 2021, 10.1109/TASC.2020.2967686
9. Molodyk, A. *et al.* Development and large volume production of extremely high current density YBa2Cu3O7 superconducting wires for fusion. *Sci Rep* **11**, 2084 (2021).
10. Kim, S. & Larbalestier, D. C. Influence of strain-driven segregation in low-angle grain boundaries on critical current density of Y0.9Nd0.1Ba2Cu3O7-d. *Supercond. Sci. Technol.* **34**, 025008 (2021).
11. Oloye, T. A. *et al.* Correlation of critical current density to quasi-biaxial texture and grain boundary cleanliness in fully dense Bi-2212 wires. *Supercond. Sci. Technol.* **34**, 035018 (2021).
12. Rochester, J. *et al.* The Magnetization of Bi:2212 Rutherford Cables for Particle Accelerator Applications. *Ieee T Appl Supercon* **31**, 1–5 (2021).
13. J Rochester, M Ortino, X Xu, X Peng, M Sumption, [The Roles of Grain Boundary Refinement and Nano-Precipitates in Flux Pinning of APC Nb3Sn](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tJx9OD8AAAAJ&sortby=pubdate&citation_for_view=tJx9OD8AAAAJ:_Qo2XoVZTnwC), IEEE Transactions on Applied Superconductivity 31 (5), 1-5 (2021).
14. M Ortino, S Pfeiffer, T Baumgartner, M Sumption, J Bernardi, X Xu, [Evolution of the superconducting properties from binary to ternary APC-Nb3Sn wires](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tJx9OD8AAAAJ&sortby=pubdate&citation_for_view=tJx9OD8AAAAJ:e5wmG9Sq2KIC), Superconductor Science and Technology 34 (3), 035028 (2021).
15. X Xu, X Peng, J Rochester, MD Sumption, J Lee, GAC Ortiz, J Hwang, [The strong influence of Ti, Zr, Hf solutes and their oxidation on microstructure and performance of Nb3Sn superconductors](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tJx9OD8AAAAJ&sortby=pubdate&citation_for_view=tJx9OD8AAAAJ:TQgYirikUcIC),

Journal of Alloys and Compounds 857, 158270 (2021).

1. X Xu, MD Sumption, J Lee, J Rochester, X Peng, [Persistent compositions of non-stoichiometric compounds with low bulk diffusivity: A theory and application to Nb3Sn superconductors](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tJx9OD8AAAAJ&sortby=pubdate&citation_for_view=tJx9OD8AAAAJ:mB3voiENLucC), Journal of Alloys and Compounds 845, 156182 (2021).
2. X Xu, X Peng, J Rochester, JY Lee, M Sumption, [High critical current density in internally-oxidized Nb3Sn superconductors and its origin](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tJx9OD8AAAAJ&sortby=pubdate&citation_for_view=tJx9OD8AAAAJ:hC7cP41nSMkC), Scripta Materialia 186, 317-320 (2021).
3. Yin, S. *et al.* Degradation of REBCO coated conductors due to a combination of epoxy impregnation, thermal cycles, and quench: Characteristics and a method of alleviation. *J Appl Phys* **128**, 173903 (2020).
4. Hossain, S. I. *et al.* A study on the extent of Ag protrusions in different TiO2-coated Bi-2212 wires. *IOP Conf. Ser.: Mater. Sci. Eng.* **756**, 012017 (2020).
5. Jiang, J. *et al.* Effects of Wire Diameter and Filament Size on the Processing Window of Bi-2212 Round Wire. *Ieee T Appl Supercon* **31**, 1–6 (2020).
6. Barzi, E., Berritta, F., Turrioni, D. & Zlobin, A. V. Heat Diffusion in High-Cp Nb3Sn Composite Superconducting Wires. *Instruments* **4**, 28 (2020).
7. Kim, S. & Larbalestier, D. C. Influence of variable Ca-doping on the critical current density of low-angle grain boundaries in YBa2Cu3O7−d. *J Appl Phys* **128**, 103905 (2020).
8. Hu, X. *et al.* Analyses of the plastic deformation of coated conductors deconstructed from ultra-high field test coils. *Supercond. Sci. Technol.* **33**, 095012 (2020).
9. Laan, D. C. V. D. *et al.* A CORC® cable insert solenoid: the first high-temperature superconducting insert magnet tested at currents exceeding 4 kA in 14 T background magnetic field. *Supercond. Sci. Technol.* **33**, 05LT03 (2020).
10. Radcliff, K. J., Walsh, R. P., Larbalestier, D. C. & Hahn, S. The Effect of Reinforcement Substrate Alloy Selection on Mechanical Properties of REBCO Coated Conductors. *IOP Conf. Ser.: Mater. Sci. Eng.* **756**, 012023 (2020).
11. Francis, A. *et al.* Development of general expressions for the temperature and magnetic field dependence of the critical current density in coated conductors with variable properties. *Supercond. Sci. Technol.* **33**, 044011 (2020).
12. Kim, K. *et al.* Design and Performance Estimation of a 20 T 46 mm No-Insulation All-REBCO User Magnet. *IEEE Transactions on Applied Superconductivity* **30**, 1–5 (2020).
13. Bhattarai, K. R. *et al.* Understanding quench in no-insulation (NI) REBCO magnets through experiments and simulations. *Supercond. Sci. Technol.* **33**, 035002 (2020).
14. Matras, M. R., Jiang, J., Trociewitz, U. P., Larbalestier, D. C. & Hellstrom, E. E. Process to densify Bi2Sr2CaCu2Ox round wire with overpressure before coil winding and final overpressure heat treatment. *Supercond. Sci. Technol.* **33**, 025010 (2020).
15. Segal, C. *et al.* Evidence of Kramer extrapolation inaccuracy for predicting high field Nb3Sn properties. *J. Phys.: Conf. Ser.* **1559**, 012062 (2020).
16. Brown, M. D. *et al.* Prediction of the Jc (B) behavior of Bi-2212 wires at high field. *IEEE Transactions on Applied Superconductivity* **29**, 1–4 (2019).
17. Balachandran, S. *et al.* Beneficial influence of Hf and Zr additions to Nb4at%Ta on the vortex pinning of Nb3Sn with and without an O source. *Supercond Sci Technology* **32**, 044006 (2019).
18. Xu, X., Zlobin, A. V., Peng, X. & Li, P. Development and Study of Nb3Sn Wires With High Specific Heat. *Ieee T Appl Supercon* **29**, 1–4 (2019).
19. X Xu, J Rochester, X Peng, M Sumption, M Tomsic, [Ternary Nb3Sn superconductors with artificial pinning centers and high upper critical fields](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tJx9OD8AAAAJ&sortby=pubdate&citation_for_view=tJx9OD8AAAAJ:3fE2CSJIrl8C), Superconductor Science and Technology 32 (2), 02LT01 (2019).
20. Sanabria, C., Pong, I., LaLonde, L. P. & Prestemon, S. Further Heat Treatment Optimizations for Nb3Sn Conductors: From Wires to Cables. *Ieee T Appl Supercon* **29**, 1–4 (2019).
21. Jiang, J. *et al.* High-Performance Bi-2212 Round Wires Made With Recent Powders. *Ieee T Appl Supercon* **29**, 1–5 (2019).
22. Matras, M. R., Hellstrom, E., Trociewitz, U., Jiang, J. & Larbalestier, D. Densified superconductor materials and methods. (2019).
23. Cheggour, N., Stauffer, T. C., Starch, W., Goodrich, L. F. & Splett, J. D. Implications of the strain irreversibility cliff on the fabrication of particle-accelerator magnets made of restacked-rod-process Nb3Sn wires. *Sci Rep-uk* **9**, 5466 (2019).
24. Su, Y.-F. *et al.* Investigation of Precipitation and Segregation of Secondary Phase Byproducts in Intermetallic Superconducting Materials. *Microsc Microanal* **25**, 2246–2247 (2019).
25. Balachandran, S. *et al.* Beneficial influence of Hf and Zr additions to Nb4at%Ta on the vortex pinning of Nb3Sn with and without an O source. *Supercond. Sci. Technol.* **32**, 044006 (2019).
26. Barzi, E., Franceschelli, C., Novitski, I., Sartori, F. & Zlobin, A. V. Measurements and Modeling of Mechanical Properties of Nb3Sn Strands, Cables, and Coils. *Ieee T Appl Supercon* **29**, 1–8 (2019).
27. Pierro, F., Delgado, M., Chiesa, L., Wang, X. & Prestemon, S. O. Measurements of the Strain Dependence of Critical Current of Commercial REBCO Tapes at 15 T Between 4.2 and 40 K for High Field Magnets. *Ieee T Appl Supercon* **29**, 1–5 (2019).
28. Brown, M. D. *et al.* Prediction of the JC (B) Behavior of Bi-2212 Wires at High Field. *Ieee T Appl Supercon* **29**, 1–4 (2019).
29. Tarantini, C. *et al.* Ta, Ti and Hf effects on Nb3Sn high-field performance: temperature-dependent dopant occupancy and failure of Kramer extrapolation. *Supercond Sci Technology* **32**, 124003 (2019).
30. Zhang, Z. *et al.* Investigation of the melt-growth process of YbBa 2 Cu 3 O 7−δ powder in Ag-sheathed tapes. *CrystEngComm* **21**, 1369–1377 (2019).
31. Bonura, M. *et al.* Very-high thermal and electrical conductivity in overpressure-processed Bi2Sr2CaCu2O8+x wires. *Mater. Res. Express* **5**, 056001 (2018).
32. Osamura, K. *et al.* Composite Superconductors. 237–322 (2018) doi:10.1201/9781315139913-5.
33. Sanabria, C. *et al.* Controlling Cu–Sn mixing so as to enable higher critical current densities in RRP® Nb3Sn wires. *Supercond Sci Technology* **31**, 064001 (2018).
34. Majkic, G. *et al.* Engineering current density over 5 kA mm−2 at 4.2 K, 14 T in thick film REBCO tapes. *Supercond Sci Technology* **31**, 10LT01 (2018).
35. Heald, S. M. *et al.* Evidence from EXAFS for Different Ta/Ti Site Occupancy in High Critical Current Density Nb3Sn Superconductor Wires. *Sci Rep-uk* **8**, 4798 (2018).
36. Pierro, F. *et al.* Finite-Element Analysis of the Strain Distribution Due to Bending in a REBCO Coated Conductor for Canted Cosine Theta Dipole Magnet Applications. *Ieee T Appl Supercon* **29**, 1–5 (2018).
37. Trociewitz, U. P. *et al.* Superconducting joint for high-temperature superconducting Bi2Sr2CaCu2O8+x (Bi-2212) wire. (2018).
38. X. Xu, P. Li, A. V. Zlobin, and X. Peng, “Improvement of stability of Nb3Sn superconductors by introducing high specific heat substances,” Supercond. Sci. Technol. 31 (2018) 03LT02 (6pp) https://doi.org/10.1088/1361-6668/aaa5de.
39. Usoskin, A. *et al.* Double-Disordered HTS-Coated Conductors and Their Assemblies Aimed for Ultra-High Fields: Large Area Tapes. *IEEE Transactions on Applied Superconductivity* **28**, 1–6 (2018).
40. Zhang, Z., Jiang, J., Wang, Q., Larbalestier, D. C. & Hellstrom, E. E. Optimization of a Novel Melt-Growth Heat Treatment of YbBa2Cu3O7-δ /Ag Tapes. *IEEE Transactions on Applied Superconductivity* **28**, 1–4 (2018).
41. Zhang, K. *et al.* Tripled critical current in racetrack coils made of Bi-2212 Rutherford cables with overpressure processing and leakage control. *Supercond. Sci. Technol.* **31**, 105009 (2018).
42. Barzi, E. *et al.* Heat Treatment Optimization of Rutherford Cables for a 15-T Nb3Sn Dipole Demonstrator. *Ieee T Appl Supercon* **27**, 1–5 (2017).
43. Brown, M. *et al.* Tensile properties and critical current strain limits of reinforced Bi-2212 conductors for high field magnets. *IOP Conf. Ser.: Mater. Sci. Eng.* **279**, 012022 (2017).
44. Hossain, I. *et al.* Effect of sheath material and reaction overpressure on Ag protrusions into the TiO2insulation coating of Bi-2212 round wire. *IOP Conf. Ser.: Mater. Sci. Eng.* **279**, 012021 (2017).
45. Sung, Z.-H. *et al.* Development of low angle grain boundaries in lightly deformed superconducting niobium and their influence on hydride distribution and flux perturbation. *Journal of Applied Physics* **121**, 193903 (2017).
46. Kim, S., Hahn, S., Kim, K. & Larbalestier, D. Method for generating linear current-field characteristics and eliminating charging delay in no-insulation superconducting magnets. *Supercond. Sci. Technol.* **30**, 035020 (2017).
47. Hu, X. *et al.* An Experimental and Analytical Study of Periodic and Aperiodic Fluctuations in the Critical Current of Long Coated Conductors. *IEEE Transactions on Applied Superconductivity* **27**, 1–5 (2017).
48. Chen, P. *et al.* Experimental Study of Potential Heat Treatment Issues of Large Bi-2212 Coils. *IEEE Transactions on Applied Superconductivity* **27**, 1–5 (2017).
49. Segal, C., Tarantini, C., Lee, P. J. & Larbalestier, D. C. Improvement of small to large grain A15 ratio in Nb3Sn PIT wires by inverted multistage heat treatments. *Iop Conf Ser Mater Sci Eng* **279**, 012019 (2017).
50. Heald, S. M., Tarantini, C., Lee, P. J., Brown, M. & Larbalestier, D. Lattice location of Ta and Ti in doped Nb 3 Sn. *Acta Crystallogr Sect Found Adv* **73**, C872–C872 (2017).
51. Motowidlo, L. R. *et al.* An intermetallic powder-in-tube approach to increased flux-pinning in Nb3Sn by internal oxidation of Zr. *Supercond. Sci. Technol.* **31**, 014002 (2017).
52. Wang, X. *et al.* Strain Distribution in REBCO-Coated Conductors Bent With the Constant-Perimeter Geometry. *Ieee T Appl Supercon* **27**, 1–10 (2017).
53. Li, P., Turrioni, D., Barzi, E. & Zlobin, A. The Effect of Heat Treatment on the Stability of Nb3Sn RRP-150&#x002F;169 Strands. *Ieee T Appl Supercon* **27**, 1–5 (2017).
54. Xu, A. *et al.* J e (4.2 K, 31.2 T) beyond 1 kA/mm2 of a ~3.2 μm thick, 20 mol% Zr-added MOCVD REBCO coated conductor. *Sci Rep* **7**, 6853 (2017).
55. X Xu, [A review and prospects for Nb3Sn superconductor development](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tJx9OD8AAAAJ&sortby=pubdate&citation_for_view=tJx9OD8AAAAJ:hqOjcs7Dif8C), Superconductor Science and Technology 30 (9), 093001 (2017).
56. Xu, X. & Sumption, M. D. A model for the compositions of non-stoichiometric intermediate phases formed by diffusion reactions, and its application to Nb3Sn superconductors. *Sci Rep-uk* **6**, S1127 (2016).
57. E. Barzi, N. Andreev, P. Li, V. Lombardo, D. Turrioni, and A. V. Zlobin, “Nb3Sn RRP® Strand and Rutherford Cable Development for a 15 T Dipole Demonstrator,” IEEE Trans. on Appl. Supercond., Vol. 26, Issue 3, June 2016, 4001007.
58. E. Barzi, A.V. Zlobin, “Research and Development of Nb3Sn Wires and Cables for High-Field Accelerator Magnets,” IEEE Trans. on Nuclear Science, vol. 63 (2), April 2016, pp. 783-803.
59. Chen, P. *et al.* Development of a persistent superconducting joint between Bi-2212/Ag-alloy multifilamentary round wires. *Superconductor Science and Technology* **30**, 025020 (2016).
60. Jiang, J. *et al.* Effects of filament size on critical current density in overpressure processed Bi-2212 round wire. *IEEE Transactions on Applied Superconductivity* **27**, 1–4 (2017).
61. Matras, M. R., Jiang, J., Larbalestier, D. C. & Hellstrom, E. E. Understanding the densification process of Bi2Sr2CaCu2Ox round wires with overpressure processing and its effect on critical current density. *Supercond. Sci. Technol.* **29**, 105005 (2016).
62. Brown, M. *et al.* Correlation of filament distortion and RRR degradation in drawn and rolled PIT and RRP Nb3Sn wires. *Supercond. Sci. Technol.* **29**, 084008 (2016).
63. Segal, C. *et al.* Evaluation of critical current density and residual resistance ratio limits in powder in tube Nb3Sn conductors. *Supercond. Sci. Technol.* **29**, 085003 (2016).
64. Sanabria, C., Lee, P. J., Starch, W., Devred, A. & Larbalestier, D. C. Metallographic autopsies of full-scale ITER prototype cable-in-conduit conductors after full cyclic testing in SULTAN: III. The importance of strand surface roughness in long twist pitch conductors. *Supercond. Sci. Technol.* **29**, 074002 (2016).
65. Tarantini, C., Sung, Z.-H., Lee, P. J., Ghosh, A. K. & Larbalestier, D. C. Significant enhancement of compositional and superconducting homogeneity in Ti rather than Ta-doped Nb3Sn. *Appl. Phys. Lett.* **108**, 042603 (2016).
66. Sanabria, C. & Larbalestier, D. C. The vital role of a well-developed Sn-Nb-Cu membrane for high Jc RRP® Nb3Sn wires. 2 (2016)
67. Lu, J. *et al.* Ceramic Insulation of Bi2Sr2CaCu2O8-x Round Wire for High-Field Magnet Applications. *IEEE Transactions on Applied Superconductivity* **26**, 1–5 (2016).
68. Laan, D. C. van der *et al.* Record current density of 344 A mm-2at 4.2 K and 17 T in CORC®accelerator magnet cables. *Supercond. Sci. Technol.* **29**, 055009 (2016).
69. Rossi, L. *et al.* Sample and length-dependent variability of 77 and 4.2 K properties in nominally identical RE123 coated conductors. *Supercond. Sci. Technol.* **29**, 054006 (2016).
70. Scheuerlein, C. *et al.* Influence of the Oxygen Partial Pressure on the Phase Evolution During Bi-2212 Wire Melt Processing. *IEEE Transactions on Applied Superconductivity* **26**, 1–4 (2016).

## PAC papers

1. A.V. Zlobin, N. Andreev, E. Barzi, V.V. Kashikhin, I. Novitski, “Design concept and parameters of a 15 T Nb3Sn dipole demonstrator for a 100 TeV hadron collider”, Proceedings of IPAC2015, Richmond, VA, USA, p.3365.
2. Igor Novitski, Alexander V Zlobin, (Fermilab, Batavia, Illinois), “Development and Comparison of Mechanical Structures for FNAL 15 T Nb3Sn Dipole Demonstrator”, ISBN 978-3-95450-180-9 Proceedings of NAPAC2016, Chicago, IL, USA MOPOB30, p.137
3. Vadim V. Kashikhin, Alexander V Zlobin (Fermilab, Batavia, Illinois), “Persistent Current Effect in 15-16 T Nb3Sn Accelerator Dipoles and its Correction”, ISBN 978-3-95450-180-9 Proceedings of NAPAC2016, Chicago, IL, USA, THA1CO04, p. 1061
4. S. Stoynev, K. Riemer. A. V. Zlobin, “Quench Training Analysis of Nb3Sn Accelerator Magnets”, ISBN 978-3-95450-180-9 Proceedings of NAPAC2016, Chicago, IL, USA MOPOB40, p. 155
5. Igor Novitski, Justin Carmichael, Vadim V. Kashikhin, and Alexander V. Zlobin, “High-Field Nb3Sn Cos-theta Dipole with Stress Management,” FERMILAB-CONF-17-340-TD
6. V.V. Kashikhin, I. Novitski, A.V. Zlobin, “Design studies and optimization of a high-field dipole for a future Very High Energy pp Collider”, Proceedings of IPAC2017, Copenhagen, Denmark WEPVA140, p.3597
7. A.V. Zlobin, V.V. Kashikhin, I. Novitski, “Large-aperture high-field Nb3Sn dipole magnets,” Proc. of IPAC2018, WEPML026, p.2738.
8. A.V. Zlobin, J. Carmichael, V.V. Kashikhin, I. Novitski, “Conceptual design of a 17 T Nb3Sn accelerator dipole magnet,” Proc. of IPAC2018, WEPML027, p.2742.
9. G. Velev, G. Ambrosio, E. Barzi, V. V. Kashikhin, S. Krave, V. Lombardo, I. Novitski, S. Stoynev, D. Turrioni, X. Xu, A. V. Zlobin, “Fermilab superconducting Nb3Sn high field magnet R&D program,” Proceedings of IPAC2019, Melbourne, Australia, May 2019, p.3597
10. V. V. Kashikhin† , V. Lombardo, G. Velev, ”Magnet design optimization for Future hadron colliders,” Proc. of IPAC2019, Melbourne, Australia, May 2019, p.4307
11. A.V. Zlobin, I. Novitski, E. Barzi, J. Carmichael, G. Chlachidze, J. DiMarco, V.V. Kashikhin, S. Krave, C. Orozco, S. Stoynev, T. Strauss, M. Tartaglia, D. Turrioni, “Quench performance and field quality of the 15 T Nb3Sn dipole demonstrator MDPCT1 in the first test run”, Proc. of NAPAC2019, September 2019. MOPLO20
12. I. Novitski, J. Coghill, T. Beale, J. Bergeron, R. Davidoff, B. Oshinowo, S. Raje, D. Swanson, C. Wilson, A.V. Zlobin, “Using Additive Manufacturing technologies in high-field accelerator magnet coils,” CEC-ICMC’2021, Japan, July 2021, IOP Conference Series: Materials Science and Engineering, v.??, issue ?, p.?, 2022 (invited talk, submitted for publication)