

Publications (student co-authors underlined)

1. G. Majkic, R. Pratap, M. Paidpilli, E. Galstyan, M. Kochat, C. Goel, S. Kar, J. Jaroszynski, D. Abraimov, and V. Selvamanickam, “In-Field Critical Current Performance of 4.0 μm Thick Film REBCO Conductor with Hf Addition at 4.2 K and Fields up to 31.2 T”, *Supercond. Sci. Technol.* (accepted for publication).
2. S. Kar, J. sai Sandra, W. Luo, V. Yerraguravagari, E. Galstyan, J. Jaroszynski, D. Abraimov, G. Majkic, V. Selvamanickam, “Progress in scale-up of REBCO STAR™ wire for canted cosine theta coils and future strategies with enhanced flexibility”, *Supercond. Sci. Technol.* (accepted for publication).
3. E. Galstyan, R. Pratap, G. Majkic, M. Kochat, D. Abraimov, J. Jaroszynski, and V. Selvamanickam, “In-field critical current and pinning mechanisms at 4.2 K of Zr-added REBCO coated conductors”, *Supercond. Sci. Technol.* **33**, 074007 (2020).
4. M. Kochat, E. Galstyan, and V. Selvamanickam, “Enhancement of the electromagnetic properties of fully-processed REBCO tapes by high-temperature tensile-creep deformation” *Supercond. Sci. Technol.* **33**, 055005 (2020).
5. J. D. Poplawsky, P. Dutta, H. Guthrey, D. Leonard, W. Guo, M. Kacharia, M. Rathi, D. Khatiwada, C. Favela, S. Sun, C. Zhang, S. Hubbard, and V. Selvamanickam, “Linking Low Angle Grain Boundaries to Device Functionality for GaAs Grown on Flexible Metal Substrates” *ACS Appl. Mat. & Interfaces* **12**, 10664 (2020)
6. M. B. Dilling, A. C. DiSante, R. Durland, C. E. Flynn, L. Metelitsa, and V. Selvamanickam, “Formulating industry-academic collaborations that work: best practices to ensure a strong relationship after the agreements are signed”, *Technology and Innovation*, **21**, 169 (2020).
7. N-I. Kim, Y-L. Chang, J. Chen, T. Barbee, W. Wang, J-Y Kim, M-K. Kwon, S. Shervin, M. Moradnia, S. Pouladi, D. Khatiwada, V. Selvamanickam, J-H. Ryou, “Piezoelectric pressure sensor based on flexible gallium nitride thin film for harsh-environment and high-temperature applications” *Sensors and Actuators A* **305**, 111940 (2020)
8. S. Pouladi, M. Asadirad, S. K. Oh, S. Shervin, J. Chen, W. Wang, Manh, R. Choi, J. Kim, D. Khatiwada, M. Rathi, P. Dutta, V. Selvamanickam, J-H. Ryou, “Effects of grain boundaries on conversion efficiencies of single-crystal-like GaAs thin-film solar cells on flexible metal tapes”, *Solar Energy Materials and Solar Cells*, 199, pp. 122-128 (2019)
9. P. Dutta, M. Rathi, D. Khatiwada, S. Sun, Y. Yao, B. Yu, S. Reed, M. Kacharia, J. Martinez, A. Litvinchuk, Z. Pasala, S. Pouladi, J. -H. Ryou, H. Ghasemi, P. Ahrenkiel, S. Hubbard and V. Selvamanickam, “Flexible GaAs solar cells on roll-to-roll processed epitaxial Ge films on metal foils: a route towards low-cost and high-performance III-V photovoltaics” *Energy and Environ. Sci.* **12**, 756-766 (2019)
10. S. Singh, P. Dutta, M. Rathi, Y. Yao, Y. Gao, S. Sun, D. Khatiwada, V. Selvamanickam and A. Mavrokefalos, “Enhanced Thermoelectric Performance in Single-Crystal-Like Semiconducting Flexible GaAs Films” *APL Materials* **7**, 031104 (2019)
11. S. Kar, J. sai Sandra, W. Luo, M. Kochat, J. Jaroszynski, D. Abraimov, G. Majkic, and V. Selvamanickam, “Next-generation highly flexible round REBCO STAR wires with over 580A mm⁻² at 4.2 K, 20 T for future compact magnets”, *Supercond. Sci. Technol.* **32**, 10LT01 (2019).
12. Y. Li, S. Sun, Y. Gao, Y. Yao, E. Galstyan, P. Rudra, M. Rathi, P. Dutta, S. Pouladi, J-H. Ryou and V. Selvamanickam, “Significant texture improvement in single-crystalline-like materials on low-cost flexible metal foils through growth of silver thin films”, *J. Appl. Cryst.* **52** (2019)
13. D. Khatiwada, P. Dutta, C. Favela, S. Sun, M. Rathi, B. Yu, Y. Li, Y. Yao, S. Pouladi, J-H. Ryou and V. Selvamanickam, “Enhanced Performance of GaAs Solar cell on Roll-to-Roll Processed Flexible Epi-Ready

- Metal Tape by Hydrogen Passivation”, *Proc. 46th IEEE Photovoltaic Specialists Conference (PVSC)*, Chicago, June 16 - 21 (2019)
14. D. Khatiwada, M. Rathi, P. Dutta, S. Sun, Y. Yao, Y. Li, S. Pouladi, J-H. Ryou, and V. Selvamanickam, “Passivation studies on Single Junction GaAs Thin Film Solar Cells on Flexible Metal Tapes for Low Cost Photovoltaics”, *ACS Applied Energy Materials* 2, 5, pp. 3114-3119 (2019)
 15. Y. Li, Y. Gao, Y. Yao, S. Sun, D. Khatiwada, S. Pouladi, E. Galstyan, M. Rathi, P. Dutta, A. P. Lytvynchuk, J-H. Ryou and V. Selvamanickam, “Direct epitaxial growth of Nickel disilicide thin films on flexible, low-cost metal tapes by magnetron sputtering”, *Appl. Phys. Lett.* **114**, 083502 (2019)
 16. A. Ben Yahia, S. Kar, G. Majkic, V. Selvamanickam, “Modeling-driven optimization of mechanically-robust REBCO tapes and wires”, *IEEE Trans. Appl. Supercond.* **29**, 8401605 (2019) [10.1109/TASC.2019.2907234](https://doi.org/10.1109/TASC.2019.2907234)
 17. E. Galstyan, R. Pratap, G. Majkic, M. Kochat, V. Mohan and V. Selvamanickam, “Correlation between Microstructure and In-Field Performance of Zr-added REBCO Coated Conductors made by Advanced MOCVD”, *IEEE Trans. Appl. Supercond.* **29**, 8001206 (2019)
 18. G. Majkic, R. Pratap, E. Galstyan, M. Kochat, A. Xu, M. Heydari Gharahcheshmeh and V. Selvamanickam, “Correlation of In-Field Performance of thick REBCO films between 0-14 T and 4.2-77K”, *IEEE Trans. Appl. Supercond.* **29**, 6602005 (2019)
 19. M. Kochat, R. Pratap, E. Galstyan, G. Majkic and V. Selvamanickam, “Electromagnetic properties of thick film REBCO tapes”, *IEEE Trans. Appl. Supercond.* **29**, 8003004 (2019)
 20. M. Heydari Gharahcheshmeh, G. Majkic, E. Galstyan, A. Xu, M. Kochat, X-F Li and V. Selvamanickam, “Superconducting characteristics of REBCO coated conductors with different Zr content”, *IEEE Trans. Appl. Supercond.* **29**, 6601105 (2019).
 21. R. Pratap, G. Majkic, E. Galstyan, G. Mohanasundaram, S. Chakradhar and V. Selvamanickam, “Growth of high-performance thick film REBCO tapes using advanced MOCVD”, *IEEE Trans. Appl. Supercond.* **29**, 6600905 (2019)
 22. S. Chen, X-F. Li, W. Luo and V. Selvamanickam, “Reel-to-Reel Scanning Hall Probe Microscope Measurement on REBCO Tapes”, *IEEE Trans. Appl. Supercond.* **29** (2019)
 23. S. Kar, W. Luo, J. sai Sandra, G. Majkic and V. Selvamanickam, “Optimum Copper Stabilizer Thickness for Symmetric Tape Round (STAR) REBCO Wires with Superior Mechanical Properties for Accelerator Magnet Applications”, *IEEE Trans. Appl. Supercond.* **29**, (2019) [10.1109/TASC.2019.2912312](https://doi.org/10.1109/TASC.2019.2912312)
 24. Y. Zhang, S. Sun, R. Pratap, E. Galstyan, J. Wosik and V. Selvamanickam, “Development of REBCO tapes on non-metallic substrates for RF applications”, *IEEE Trans. Appl. Supercond.* **29**, 3500405 (2019) [10.1109/TASC.2019.2896545](https://doi.org/10.1109/TASC.2019.2896545)
 25. W. Luo, S. Kar, X-F. Li, E. Galstyan, M. Kochat, J. Sandra, J. Jaroszynski, D. Abraimov, V. Selvamanickam, “Superior critical current of Symmetric Tape Round (STAR) REBCO wires in ultra-high background fields up to 31.2 T”, *Supercond. Sci. Technol.*, **31**, 12LT01, 2018.
 26. Y. Li, H. Guo, Y. Yao, P. Dutta, M. Rathi, N. Zheng, Y. Gao, S. Sun, J-H. Ryou, P. Ahrenkiel and V. Selvamanickam, “Defect reduction by liquid phase epitaxy of germanium on single-crystalline-like germanium templates on flexible, low-cost metal substrates”, *Crystal Eng Comm.* **20**, 6573-6579 (2018)
 27. G. Majkic, R. Pratap, A. Xu, E. Galstyan, H. C. Higley, S. O. Prestemon, X. Wang, D. Abraimov, J. Jaroszynski and V. Selvamanickam, “Engineering Current Density over 5 kA/mm² at 4.2 K, 14 T in Thick Film REBCO Tapes”, *Supercond. Sci. Technol.* **31** 10LT01 (2018).

28. S. Pouladi, M. Rathi, D. Khatiwada, M. Asadirad, S. Kyu Oh, P. Dutta, Y. Yao, Y. Gao, S. Sun, Y. Li, S. Shervin, K-H. Lee, V. Selvamanickam, and J-H. Ryou, “High-efficiency flexible III-V photovoltaic solar cells based on single-crystal-like thin films directly grown on metallic tapes” *Prog Photovolt Res Appl.* 2018;1–7.
29. M. Heydari Gharahcheshmeh, G. Majkic, E. Galstyan, A. Xu, Y. Zhang, X-F. Li, J. Kukunuru, R. Katta and V. Selvamanickam, “Relation between c-axis lattice parameter and critical current density of 25 mol.% Zr-added (Gd,Y)Ba₂Cu₃O_{7-δ} superconductor tapes in high magnetic fields at 30 K”, *Physica C.* **553** 26–32 (2018)
30. S. Pouladi, M. Rathi, P. Dutta, S. K. Oh, D. Khatiwada, Y. Yao, Y. Gao, S. Sun, Y. Li, M. Asadirad, S. Shervin, J. Chen, V. Selvamanickam, and J-H. Ryou, “Toward higher efficiency of low-cost flexible single-crystal-like GaAs thin film solar cells on metal tapes,” *Proc. 45th IEEE Photovoltaic Specialists Conference (PVSC-44)/The 7th World Conference on Photovoltaic Energy Conversion (WCPEC-7)*, Waikoloa, Hawaii, Jun. 2018, pp. 237–239.
31. D. Khatiwada, P. Dutta, M. Rathi, B. Yu, C. Favela, Y. Yao, S. Sun, Y. Li, S. Pouladi, J-H. Ryou and V. Selvamanickam, “Impact of Passivation on Base Thickness for Single Junction Flexible GaAs Solar Cells on Epi-ready Metal Tape”, *Proc. 45th IEEE Photovoltaic Specialists Conference (PVSC-44)/The 7th World Conference on Photovoltaic Energy Conversion (WCPEC-7)*, Waikoloa, Hawaii, Jun. 2018, pp.1822-1825
32. P. Dutta, J. Poplawsky, H. Guthrey, M. Rathi, D. Khatiwada, S. Sun, Y. Yao, B. Yu, E. Galstyan and V. Selvamanickam, “Nanoscale investigation of grain boundary characteristics of single-crystalline-like GaAs films and solar cells on flexible metal substrates”, *Proc. 45th IEEE Photovoltaic Specialists Conference (PVSC-44)/The 7th World Conference on Photovoltaic Energy Conversion (WCPEC-7)*, Waikoloa, Hawaii, Jun. 2018, pp. 58-61.
33. M. Rathi, C. Favela, D. Khatiwada, P. Dutta, Y. Yao, S. Sun, S. Pouladi, P. Ahrenkiel, J. Ryou and V. Selvamanickam, “2-J GaAs Solar Cells on Epi-Ready Flexible Metal Substrates”, *Proc. 45th IEEE Photovoltaic Specialists Conference (PVSC-44)/The 7th World Conference on Photovoltaic Energy Conversion (WCPEC-7)*, Waikoloa, Hawaii, Jun. 2018, pp. 240–242.
34. G. Majkic, R. Pratap, A. Xu, E. Galstyan and V. Selvamanickam “Over 15MA/cm² of critical current density in 4.8μm thick, Zr-doped (Gd,Y)Ba₂Cu₃O_x superconductor at 30 K, 3 T” *Nature Scientific Reports*, **8**, 6982 (2018)
35. S. Kar, W. Luo, A. Ben Yahia, X-F. Li, G. Majkic and V. Selvamanickam, “ J_c (4.2 K, 15 T) beyond 450 A/mm² at 15 mm bend radius with REBCO Symmetric Tape Round (STAR) wire: A prospective candidate for future accelerator magnet applications”, *Supercond. Sci. Technol.* **3**, 04LT01 (2018)
36. P. Dutta, Y. Gao, M. Rathi, Y. Yao, M. Iliev, J. Martinez, V. Selvamanickam, “High mobility single-crystalline-like silicon thin films on inexpensive flexible metal foils by plasma enhanced chemical vapor deposition”, *Acta Materialia*, **147C**, pp. 51-58, (2018).
37. M. Rathi, P. Dutta, N. Zheng, Y. Yao, D. Khatiwada, Y. Gao, S. Sun, Y. Li, S. Pouladi, P. Ahrenkiel, J. - H. Ryou, V. Selvamanickam, “High opto-electronic quality n-type single-crystalline-like GaAs thin films on flexible metal substrates”, *J. Mater. Chem. C*, **5**, 7919-7926, (2017).
38. A. Xu, Y. Zhang, M.H. Gharahcheshmeh, Y. Yao, E. Galstyan, D. Abraimov, F. Kametani, A. Polyanskii, J. Jaroszynski, V. Griffin, G. Majkic, D. Larbalestier, and V. Selvamanickam, " J_c (4.2 K, 31.2 T) beyond 1 kA/mm² of a ~3.2 μm thick, 20mol%Zr-added MOCVD REBCO coated conductor", *Nature Scientific Reports*, **7**, 6853 (2017).

39. M. Rathi, P. Dutta, D. Khatiwada, N. Zheng, Y. Yao, Y. Gao, Y. Li, S. Sun, S. Pouladi, M. Asadirad, P. Ahrenkiel, J. Ryou and V. Selvamanickam, "Reduced defect density in single-crystalline-like GaAs thin film on flexible metal substrates by using superlattice structures" *Proc. 44th IEEE Photovoltaic Specialists Conference (PVSC)*, Washington DC, June 25 – 30 (2017)
40. S. Pouladi, M. Rathi, M. Asadirad, P. Dutta, S. K. Oh, D. Khatiwada, S. Shervin, Y. Yao, N. Zheng, P. Ahrenkiel, V. Selvamanickam, and J.-H. Ryou, "Flexible GaAs single-junction solar cells based on single-crystal-like thin-film materials directly grown on metal tapes," *Proc. 44th IEEE Photovoltaic Specialists Conference (PVSC)*, Washington DC, June 25 – 30 (2017)
41. Y. Li, Y. Yao, Y. Gao, S. Sun, P. Dutta, M. Rathi, J-H Ryou, and V. Selvamanickam, "Biaxial-textured Titanium Nitride thin films on low cost, flexible metal substrate as a conductive buffer layer for thin film solar cells" *Proc. 44th IEEE Photovoltaic Specialists Conference (PVSC)*, Washington DC, June 25 – 30 (2017)
42. A. Ben Yahia, X. Li, M. Majoros, M. D. Sumption and V. Selvamanickam, "AC loss reduction in multifilamentary coated conductors with transposed filaments", *IEEE Trans. Appl. Supercond.* **27**, 5600105 (2017)
43. M. Heydari Gharahcheshmeh, E. Galstyan, J. Kukunuru, R. Katta, G. Majkic, X-F. Li and V. Selvamanickam, "MOCVD of Heavily-Doped 25 mol.% Zr-added (Gd,Y)Ba₂Cu₃O_{7-δ} Coated Conductors" *IEEE Trans. Appl. Supercond.* **27**, 7835616 (2017)
44. W. Luo, S. Kar, A. Xu, X.F. Li, A. Ben Yahia and V. Selvamanickam, "Fabrication and electromagnetic characterization of ultra-small diameter REBCO wires", *IEEE Trans. Appl. Supercond.* **27**, 7778137 (2017)
45. M. Heydari Gharahcheshmeh, E. Galstyan, A. Xu, J. Kukunuru, R. Katta, Y. Zhang, G. Majkic, X-F. Li, V. Selvamanickam, "Superconducting transition width (ΔT_c) characteristics of 25 mol.% Zr-added (Gd,Y)Ba₂Cu₃O_{7-δ} superconductor tapes with high in-field critical current density at 30K", *Supercond. Sci. Technol.* **30**, 015016 (2017)
46. G. Majkic, R. Pratap, E. Galstyan, A. Xu, Y. Zhang and V. Selvamanickam, "Engineering of Nanorods for Superior in Field Performance of 2G-HTS Conductor Utilizing Advanced MOCVD Reactor", *IEEE Trans. Appl. Supercond.* **27**, 7778137 (2017)
47. M. Asadirad, S. Pouladi, S. Shervin, S. K. Oh, K. W. Lee, J. Kim, S-N Lee, Y. Gao, P. Dutta, V. Selvamanickam, and J-H. Ryou, "Numerical Simulation for Operation of Flexible Thin-Film Transistors with Bending", *IEEE Elec. Dev. Lett.* **38**, 217 (2017)
48. S. Kar, W. Luo and V. Selvamanickam, "Ultra-small Diameter Round REBCO Wire with Robust Mechanical Properties", *IEEE Trans. Appl. Supercond.* **27**, (2017)
49. J. Wosik, J. Krupka, K. Qin, D. Ketharnath, E. Galstyan and V. Selvamanickam, "Microwave characterization of normal and superconducting states of MOCVD made YBCO tape" *Supercond. Sci. Technol.* **30**, 035009 (2017)
50. A. Xu, Y. Zhang, M. Heydari Gharahcheshmeh, L. Delgado, N. Khatri, Y. Liu, E. Galstyan and V. Selvamanickam, "Relevant Pinning for ab-plane J_c Enhancement of MOCVD REBCO Coated Conductors", *IEEE Trans. Appl. Supercond.* **27**, 7807237 (2017)

51. X-F Li, A. Ben Yahia, G. Majkic, M. Kochat, S. Kar and V. Selvamanickam, “Reel-to-reel critical current measurement of REBCO coated conductors,” *IEEE Trans. Appl. Supercond.* **27**, 7792641 (2017)
52. V. Selvamanickam, R. Mallick, X. Tao, Y. Yao, M. Heydari Gharahcheshmeh, A. Xu, Y. Zhang, E. Galstyan, and G. Majkic, “Improved flux pinning by prefabricated SnO₂ nanowires embedded in epitaxial YBa₂Cu₃O_x superconducting thin film tapes”, *Supercond. Sci. Technol.* **29**, 085016 (2016)
53. X. Cai, W. Li, A. Bose and V. Selvamanickam, “Interfacial bonding enhancement of reel-to-reel selective electrodeposition of copper stabilizer on a multifilamentary second-generation high-temperature superconductor tape” *Supercond. Sci. Technol.* **29**, 105018 (2016)
54. Y. Gao, M. Asadirad, Y. Yao, P. Dutta, E. Galstyan, S. Shervin, K-H. Lee, S. Pouladi, S. Sun, M. Rathi, J-H. Ryou and V. Selvamanickam, “High-performance flexible thin-film transistors based on single-crystal-like silicon epitaxially grown on metal tape by roll-to-roll continuous deposition process” *ACS Appl. Mat. & Interfaces* **8**, 29565-29572 (2016)
55. M. Asadirad, Y. Gao, P. Dutta, S. Shervin, S. Sun, S. Ravipati, S. H. Kim, Y. Yao, K. H. Lee, A. P. Litvinchuk, V. Selvamanickam and J-H. Ryou, “High-Performance Flexible Thin-Film Transistors Based on Single-Crystal-Like Germanium on Glass”, *Adv. Electron. Mater.* 1600041 (2016)
56. I. Kesgin, N. Khatri, Y. Liu, L. Delgado, E. Galstyan and V. Selvamanickam, “Influence of superconductor film composition on adhesion strength of coated conductors “ *Supercond. Sci. Technol.* **28**, 072002 (2016).
57. X-F. Li, M. Kochat, G. Majkic and V. Selvamanickam “Critical current density measurement on striated coated conductor using scanning Hall probe microscope” *Supercond. Sci. Technol.* **29**, 085014 (2016)
58. I. A. Sadovskyy, Y. Jia, M. Leroux, J. Kwon, H. Hu, L. Fang, C. Chaparro, S. Zhu, U. Welp, J. Zuo, Y. Zhang, R. Nakasaki, V. Selvamanickam, G. W. Crabtree, A. E. Koshelev, A. Glatz and W.-K. Kwok, “Towards Critical Current by Design” *Advanced Materials* **28**, 4593–4600 (2016)
59. P. Dutta, M. Rathi, Y. Gao, Y. Yao, D. Khatiwada, M. T. Desessarts, A. Khadimallah, N. Zheng, P. Ahrenkiel and V. Selvamanickam, “InP thin films with single-crystalline-like properties on flexible metal substrates for photovoltaic application”, *Proc. 43rd IEEE Photovoltaic Specialists Conference (PVSC)*, Portland, OR, June 5 – 10, 2016, pp. 1892-1894
60. M. Rathi, P. Dutta, N. Zheng, Y. Yao, Y. Gao, S. Sun, A. Khadimallah, M. Thomas, M. Asadirad, P. Ahrenkiel, J. Ryou and V. Selvamanickam, “AlGaAs/GaAs DH and InGaP/GaAs DH grown by MOCVD on flexible metal substrates”, *Proc. 43rd IEEE Photovoltaic Specialists Conference (PVSC)*, Portland, OR, June 5 – 10, 2016, pp. 1926 - 1929
61. M. Asadirad, M. Rathi, S. Pouladi, Y. Yao, P. Dutta, S. Shervin, K.H. Lee, N. Zheng, P. Ahrenkiel, V. Selvamanickam and J-H. Ryou, “III-V Thin-Film Photovoltaic Solar Cells on Flexible Metal Tapes”, *Proc. 43rd IEEE Photovoltaic Specialists Conference (PVSC)*, Portland, OR, June 5 – 10, 2016, 1954-1956
62. S. Kar, X-F Li, V. Selvamanickam and V. V. Rao, “Current distribution mapping in insulated (Gd,Y)BCO based stabilizer-free coated conductor after AC over-current test for R-SFCL application”, IOP Conference Series: Materials Science and Engineering, **171**, *26th International Cryogenic Engineering Conference and International Cryogenic Materials Conference* March 1, 2017.

63. V. Selvamanickam, M. Heydari Gharahcheshmeh, A. Xu, Y. Zhang and E. Galstyan, “Requirements to achieve high in-field critical current density at 30 K in heavily-doped (Gd,Y)Ba₂Cu₃O_x superconductor tapes”, *Supercond. Sci. Technol.* **28**, 104003 (2015).
64. D. Abraimov, A. Ballarino, C. Barth, L. Bottura, R. Dietrich, A. Francis, J. Jaroszynski, G.S. Majkic, J. McCallister, A. Polyanskii, L. Rossi, A. Rutt, M. Santos, K. Schlenga, V. Selvamanickam, C. Senatore, A. Usoskin, Y. L. Viouchkov, “Double disordered YBCO coated conductors of industrial scale: high currents in high magnetic field” *Supercond. Sci. Technol.* **28**, 114007 (2015).
65. A. Xu, L. Delgado, M. Heydari Gharahcheshmeh, N. Khatri, Y. Liu, V. Selvamanickam, “Strong correlation between $J_c(T, H \parallel c)$ and $J_c(77\text{ K}, 3\text{ T} \parallel c)$ in Zr-added (Gd,Y)BaCuO coated conductors at temperatures from 77 down to 20 K and fields up to 9 T” *Supercond. Sci. Technol.* **28**, 082001 (2015).
66. M. Rathi, P. Dutta, Y. Yao, Y. Gao, M. Asadirad, N. Zheng, P. Ahrenkiel, J. Ryou and V. Selvamanickam, “Thin Film III-V Photovoltaics using Single-Crystalline-Like, Flexible Substrates” *2015 IEEE 41st Photovoltaic Specialist Conference, PVSC 2015*, New Orleans, June 14 – 19, 2015
67. V. Selvamanickam, M. Heydari Gharahcheshmeh, A. Xu, Y. Zhang and E. Galstyan, “Critical current density above 15 MA/cm² at 30 K, 3 T in 2.2 μm thick heavily-doped (Gd,Y)Ba₂Cu₃O_x superconductor tapes”, *Supercond. Sci. Technol.* **28**, 072002 (2015).
68. V. Selvamanickam, M. Heydari Gharahcheshmeh, A. Xu, E. Galstyan, L. Delgado and C. Cantoni, “High critical currents in heavily doped (Gd,Y)Ba₂Cu₃O_x superconductor tapes” *Appl. Phys. Lett.* **106**, 032601 (2015).
69. P. Dutta, M. Rathi, N. Zheng, Y. Gao, Y. Yao, J. Martinez, P. Ahrenkiel, V. Selvamanickam, “High mobility single-crystalline-like GaAs thin films on inexpensive flexible metal substrates by metal-organic chemical vapor deposition” *Appl. Phys. Lett.* **105**, 092104 (2014)
70. E. Galstyan, M. Heydari Gharahcheshmeh, L. Delgado, A. Xu, G. Majkic, and V. Selvamanickam, “Microstructure Characteristics of High Lift Factor MOCVD REBCO Coated Conductors with High Zr Content” *IEEE Trans. Appl. Supercond.* **25**, 6954395 (2015).
71. A. Xu, N. Khatri, Y. Liu, G. Majkic, V. Selvamanickam, D. Abraimov, J. Jaroszynski and D. Larbalestier, “Broad temperature pinning study of 15 mol.% Zr-added (Gd, Y)-Ba-Cu-O MOCVD coated conductors”, *IEEE Trans. Appl. Supercond.* **25**, 6603105 (2015).
72. G. Majkic, E. Galstyan and V. Selvamanickam, “High Performance 2G-HTS Wire Using a Novel MOCVD System” *IEEE Trans. Appl. Supercond.* **25**, 6605304 (2015)
73. I. Kesgin, G. A. Levin, X. Cai, X-F. Li, T. J. Haugan and V. Selvamanickam, “Influence of Oxygenation in Copper Stabilized Multifilamentary 2G HTS Tapes Made by Selective Electroplating and Laser Ablation” *IEEE Trans. Appl. Supercond.* **25**, 6940233 (2015).
74. X-F. Li, A. B. Yahia, G. Majkic and V. Selvamanickam, “Scanning Hall probe microscopy on laser striated multifilament coated conductor” *IEEE Trans. Appl. Supercond.* **25**, 6960883 (2015).
75. X. Cai, I. Kesgin and V. Selvamanickam, “Reel-to-reel Selective Electroplating of Cu Stabilizer for Multifilamentary Coated Conductors” *IEEE Trans. Appl. Supercond.* **25**, 6954395 (2015).

76. Y. Gao, P. Dutta, M. Rathi, Y. Yao, M. Iliev, J-H. Ryou, and V. Selvamanickam, “Heteroepitaxial silicon thin films on flexible polycrystalline metal substrates for crystalline photovoltaic solar cells: A comparison between physical vapor deposition and plasma-enhanced chemical vapor deposition” *2014 IEEE 40th Photovoltaic Specialist Conference, PVSC 2014*, p 1287-1291, October 15, 2014
77. Y. Yao, P. Dutta, M. Rathi, Y. Gao, Y. Li, B. Holzapfel and V. Selvamanickam, “Comparative studies of single-crystalline-like Ge thin film on inexpensive flexible metal substrates” *2014 IEEE 40th Photovoltaic Specialist Conference, PVSC 2014*, p 1310-1313, October 15, 2014
78. P. Dutta, M. Rathi, Y. Yao, Y. Gao, G. Majkic, M. Iliev, J. Martinez, B. Holzapfel and V. Selvamanickam “Large grained single-crystalline-like germanium thin film on flexible Ni–W tape”, *RSC Adv.* **4**, 21042 (2014).
79. V. Selvamanickam, A. Xu, Y. Liu, N. D. Khatri, C. Lei, Y. Chen, E. Galstyan and G. Majkic, “Correlation between in-field critical currents in Zr-added (Gd,Y)Ba₂Cu₃O_x superconducting tapes at 30 K and 77 K” *Supercond. Sci. Technol.* **27**, 055010 (2014)
80. A. Xu, L. Delgado, N. Khatri, Y. Liu, V. Selvamanickam, D. Abraimov, J. Jaroszynski, F. Kametani and D. C. Larbalestier, “Strongly enhanced vortex pinning from 4 to 77 K in magnetic fields up to 31 T in 15 mol% Zr-added (Gd, Y)-Ba-Cu-O superconducting tapes” *APL Materials* **2**, 046111 (2014)
81. I. Kesgin, G. Levin, T. Haugan and V. Selvamanickam, “Multifilament, copper-stabilized superconductor tapes with low alternating current loss” *Appl. Phys. Lett.* **103**, 252603 (2013)
82. N. D. Khatri, G. Majkic, T. Shi, Y. Chen, and V. Selvamanickam, “Pre-fabricated Nanorods in RE-Ba-Cu-O Superconductors”, *Supercond. Sci. Technol.* **26**, 085022 (2013)
83. Y. Gao, R. Wang, P. Dutta and V. Selvamanickam, “Optimization of a single crystalline-like germanium thin film growth on inexpensive flexible substrates and fabrication of germanium bottom junction” *Proc. 39th IEEE Photovoltaic Specialists Conference (PVSC), Tampa, FL*, (2013) pp. 2420-24..
84. P. Dutta, M. Rathi, P. Ahrenkiel, Y. Gao, A. Mehrotra, E. Galstyan, M. Iliev, B. Makarenko, R. Forrest, A. Freundlich, V. Selvamanickam, “Epitaxial thin film GaAs deposited by MOCVD on Low-Cost, Flexible Substrates for High Efficiency Photovoltaics” *Proc. 39th IEEE Photovoltaic Specialists Conference (PVSC), Tampa, FL* (2013) pp. 3393-96.
85. R. Wang, S. Sambandam, G. Majkic, E. Galtsyan and V. Selvamanickam, “High mobility single-crystalline-like germanium thin film on flexible, inexpensive substrates” *Thin Solid Films* **527**, 9–15 (2013)
86. I. Kesgin, G. Majkic, and V. Selvamanickam, “A simple, cost effective top-down method to achieve fully filamentized low AC loss 2G HTS coated conductors” , *Physica C.* **486**, 43–50 (2013)
87. Y. Liu, Y. Yao, Y. Chen, N. D. Khatri, J. Liu, E. Galtsyan, C. Lei, and V. Selvamanickam, “Electromagnetic properties of (Gd,Y)Ba₂Cu₃O_x superconducting tapes with high levels of Zr addition”, *IEEE Trans. Appl. Supercond.* **23**, 6601804 (2013)
88. V. Selvamanickam, Y. Chen, G. Majkic, T. Shi, Y. Liu, N. D. Khatri, J. Liu, Y. Yao, X. Xiong, C. Lei, S. Soloveichik and E. Galtsyan, “Enhanced critical currents in high levels of Zr-added (Gd,Y)Ba₂Cu₃O_x

- superconducting tapes”, *Supercond. Sci. Technol.* **26**, 035006 (2013) (one of 40 papers listed as ‘Highlight of 2013’ by Superconductor Science and Technology)
89. N. D. Khatri, G. Majkic, R. Wang, A. Sundaram, S. Sambandam, and V. Selvamanickam, “Pre-fabricated Metal Nanorods on Biaxially-textured Templates on Flexible Substrates for REBCO Superconductors”, *IEEE Trans. Appl. Supercond.* **23**, 6600705 (2013)
90. X. Cai, I. Kesgin, R. Schmidt, Y. Chen and V. Selvamanickam, “Completely Etch-free Fabrication of Multifilamentary Coated Conductor Using Inkjet Printing and Electrodeposition”, *IEEE Trans. Appl. Supercond.* **23**, 6603005 (2013)
91. I. Kesgin, G. Majkic, and V. Selvamanickam, “Effect of Selectively Electrodeposited Stabilizer Thickness on AC Loss Behavior of Fully-Filamentized HTS Wire”, *IEEE Trans. Appl. Supercond.* **23**, 5900505 (2013)
92. G. Majkic, E. Galstyan, Y. Zhang and V. Selvamanickam, “Investigation of Delamination Mechanisms in IBAD-MOCVD REBCO Coated Conductors”, *IEEE Trans. Appl. Supercond.* **23**, 6600205 (2013)
93. G. Majkic, Y. Yao, J. Liu, Y. Liu, N. Khatri, T. Shi, Y. Chen, E. Galstyan, C. Lei and V. Selvamanickam, “Effect of High BZO Dopant Levels on Performance of 2G-HTS MOCVD Wire at Intermediate and Low Temperatures”, *IEEE Trans. Appl. Supercond.* **23**, 6602605 (2013)
94. C. Lei, E. Galstyan, Y. Chen, T. Shi, Y. Liu, N. Khatri, J. Liu, X. Xiong, G. Majkic and V. Selvamanickam, “The structural evolution of (Gd,Y)Ba₂Cu₃O_x tapes with Zr addition made by metal organic chemical vapor deposition” *IEEE Trans. Appl. Supercond.* **23**, 6602404 (2013)
95. V. Selvamanickam, Y. Yao, Y. Chen, T. Shi, Y. Liu, N. D. Khatri, J. Liu, C. Lei, E. Galstyan and G. Majkic, “Low-temperature, High Magnetic Field Critical Current Characteristics of Zr-added (Gd,Y)Ba₂Cu₃O_x superconducting tapes”, *Supercond. Sci. Technol.* **25**, 125013 (2012).
96. V. Selvamanickam, Y. Chen, Y. Zhang, A. Guevara, T. Shi, Y. Yao, G. Majkic, C. Lei, E. Galstyan and D.J. Miller, “Effect of rare-earth composition on microstructure and pinning properties of Zr-doped (Gd,Y)Ba₂Cu₃O_x superconducting tapes”, *Supercond. Sci. Technol.* **25**, 045012 (2012).
97. A. Mehrotra, A. Freundlich, V. Selvamanickam, G. Majkic, R. Wang and S. Sambandam, “Epitaxial growth of (100) GaAs on CeO_x coated flexible metal substrates”, *Proc. 38th IEEE Photovoltaic Specialists Conference (PVSC), Austin, TX*, June 4-9, (2012) pp. 002571-74.
98. V. Selvamanickam, C. Jian, X. Xiong, G. Majkic and E. Galstyan, “Single-Crystalline-Like Germanium Thin Films on Glass Substrates”, *Proc. 38th IEEE Photovoltaic Specialists Conference (PVSC), Austin, TX*, June 4-9, (2012) pp. 002592 – 95.
99. Y. Zhang, D.W. Hazelton, A.R. Knoll, J.M. Duval, P. Brownsey, S. Repnoy, S. Soloveichik, A. Sundaram, R.B. McClure, G. Majkic, and V. Selvamanickam, “Adhesion strength study of IBAD–MOCVD-based 2G HTS wire using a peel test”, *Physica C*. **473**, 41 (2012)
100. Ö Polat, M Ertuğrul, J R Thompson, K J Leonard, J W Sinclair, M P Paranthaman, S H Wee, Y L Zuev, X Xiong, V Selvamanickam, D K Christen and T Aytuğ, “Superconducting properties of YBa₂Cu₃O_{7-δ} films deposited on commercial tape substrates, decorated with Pd or Ta nano-islands”, *Supercond. Sci. Technol.* **25**, 025018 (2012).

101. V. Selvamanickam, Y. Chen, I. Kesgin, A. Guevara, T. Shi, Y. Yao, Y. Qiao, Y. Zhang, Y. Zhang, G. Majkic, G. Carota, A. Rar, Y. Xie, J. Dackow, B. Maiorov, L. Civale, V. Braccini, J. Jaroszynski, A. Xu, D. Larbalestier, and R. Bhattacharya, "Progress in performance improvement and new research areas for cost reduction of 2G HTS wires" *IEEE Trans. Appl. Supercond.* **21**, 3049 (2011)
102. Y. Chen, T. Shi, A. P. Guevara, Y. Zhang, Y. Yao, I. Kesgin, and V. Selvamanickam, "Composition Effects on the Critical Current of MOCVD-processed Zr:GdYBCO Coated Conductors in an Applied Magnetic Field", *IEEE Trans. Appl. Supercond.* **21**, 3166 (2011)
103. C. Tarantini, J. Jaroszynski, F. Kametani, Y. L. Zuev, A. Gurevich, Y. Chen, V. Selvamanickam, D. C. Larbalestier, and D. K. Christen "Anisotropy of the irreversibility field for Zr-doped (Y,Gd)Ba₂Cu₃O_{7-x} thin films up to 45 T" *Phys. Rev. B.* **84**, 224514 (2011)
104. V. Selvamanickam, S. Sambandam, A. Sundaram, R. Wang, and G. Majkic, "Novel single-crystalline-like germanium thin films on flexible, inexpensive substrates: influence of architecture and film thickness", *Proc. 37th IEEE Photovoltaic Specialists Conference (PVSC), Seattle, WA*, (2011) 003385-89
105. V. F. Solovyov, Q. Li, Y. Chen, A. Guevara, T. Shi, and V. Selvamanickam, "Nucleation of ReBa₂Cu₃O_x (Re=rare-earth) during high-rate metal-organic chemical vapor deposition growth", *J. Appl. Phys.* **110**, 123904 (2011)
106. G. Majkic, I. Kesgin, Y. Zhang, Y. Qiao, R. Schmidt, and V. Selvamanickam, "AC Loss Filamentization of 2G HTS Tapes by Buffer Stack Removal", *IEEE Trans. Appl. Supercond.* **21**, 3297 (2011)
107. Ö. Polat, J. W. Sinclair, Y. L. Zuev, J. R. Thompson, D. K. Christen, S. W. Cook, D. Kumar, Y. Chen, and V. Selvamanickam "Thickness dependence of magnetic relaxation and E-J characteristics in superconducting (Gd-Y)-Ba-Cu-O films with strong vortex pinning" *Phys. Rev. B.* **84**, 024519 (2011)
108. R. N. Bhattacharya, J. Mann, Y. Qiao, Y. Zhang, and V. Selvamanickam, "Electrodeposited Ag-stabilization layer for high temperature superconducting coated conductors", *Ceram. Trans.* **226**, 137-143 (2011).
109. V. Braccini, A. Xu, J. Jaroszynski, Y. Xin, D. C. Larbalestier, Y. Chen, G. Carota, J. Dackow, I. Kesgin, Y. Yao, A. Guevara, T. Shi and V. Selvamanickam, "Properties of recent IBAD-MOCVD Coated Conductors relevant to their high field, low temperature magnet use", *Supercond. Sci. Technol.* **24**, 035001 (2011)
110. Y. Qiao, Y. Chen, X. Xiong, S. Kim, V. Matias, C. Sheehan, Y. Zhang, V. Selvamanickam, "Scale up of Coated Conductor Substrate Process by Reel-to-reel Planarization of Amorphous Oxide Layers", *IEEE Trans. Appl. Supercond.* **21**, 3055 (2011)
111. Ö. Polat, T. Aytug, M. Paranthaman, K. Kim, A. R. Lupini, H. M. Meyer, X. Qiu, J.R. Thompson, D.K. Christen, and V. Selvamanickam, "Pinning Enhancements in YBCO Films via Nanoengineered LaMnO₃:MgO Composite Cap Layer", *IEEE Trans. Appl. Supercond.* **21**, 3171 (2011)
112. J.-C. Llambe, D. Hazelton, J. Duval, M. Albertini, S. Repnoy, V. Selvamanickam, G. Majkic, I. Kesgin, J. Langston, M. Steurer, F. Bogdan, J. Hauer, D. Crook, S. Ranner, T. Williams, and M. Coleman, "Performance of 2G HTS Tapes in Sub-cooled LN₂ for Superconducting Fault Current Limiting Applications", *IEEE Trans. Appl. Supercond.* **21**, 1206 (2011)

113. R. Bhattacharya, Y. Qiao, and V. Selvamanickam, “Electrodeposited Cu-Stabilization Layer for High-Temperature Superconducting Coated Conductors” *J. of Supercond. and Novel Magnetism* **24**, 1021 (2011)
114. J. Pelegrin, E. Martinez, L. Angurel, Y. Xie, and V. Selvamanickam, “Numerical and Experimental Analysis of Normal Zone Propagation on 2G HTS Wires”, *IEEE Trans. Appl. Supercond.* **21**, 3041 (2011)
115. Y. Zhang, R. C. Duckworth, T. Ha, F. List, M. J. Gouge, Y. Chen, X. Xiong, V. Selvamanickam, and A. Polyanskii “AC Loss Reduction in Filamentized YBCO Coated Conductors With Virtual Transverse Cross-Cuts” *IEEE Trans. Appl. Supercond.* **21**, 3301 (2011)
116. L. A. Angurel, E. Martinez, J. Pelegrin, R. Lahoz, G. F. de la Fuente, N. Andres, M. P. Arroyo, Y. Y. Xie, and V. Selvamanickam, “Changes in the Thermal Stability of 2G HTS Wires by Local Modification of the Stabilization Layer”, *IEEE Trans. Appl. Supercond.* **21**, 3017 (2011)
117. V. Selvamanickam, A. Guevara, Y. Zhang, I. Kesgin, Y. Xie, G. Carota, Y. Chen, J. Dackow, Y. Zhang, Y. Zuev, C. Cantoni, A. Goyal, J. Coulter and L. Civale, “Enhanced and uniform in-field performance in long (Gd, Y)–Ba–Cu–O tapes with zirconium doping fabricated by metal–organic chemical vapor deposition” *Supercond. Sci. Technol.* **23**, 014014 (2010) doi: [10.1088/0953-2048/23/1/014014](https://doi.org/10.1088/0953-2048/23/1/014014)
118. V. Selvamanickam, S. Sambandam, A. Sundaram, S. Lee, G. Majkic, A. Rar, and A. Freundlich, “Novel, single-crystalline-like templates on low-cost, flexible substrates for high efficiency photovoltaics”, *Proc. 35th IEEE Photovoltaic Specialists Conference (PVSC), Honolulu, H.* (2010) pp. 001048-51.
119. A. Freundlich, C. Rajapaksha, A. Alemu, A. Mehrotra, M. C. Wu, S. Sambandam, and V. Selvamanickam, “Single crystalline gallium arsenide photovoltaics on flexible metal substrates”, *Proc. 35th IEEE Photovoltaic Specialists Conference (PVSC), Honolulu, HI* (2010) pp. 002543-5.
120. S. Wee, A. Goyal, Eliot D. Specht, C. Cantoni, Y. L. Zuev, V. Selvamanickam, and S. Cook, “Enhanced flux pinning and critical current density via incorporation of self-assembled rare-earth barium tantalate nanocolumns within $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ films” *Phys. Rev. B.* **81**, 14050(R) (2010).
121. T. Aytug, M. Paranthaman, E. D. Specht, Y. Zhang, K. Kim, Y. L. Zuev, C. Cantoni, A. Goyal, D. K. Christen, V. A. Maroni, Y. Chen and V. Selvamanickam, “Enhanced flux pinning in MOCVD-YBCO films through Zr additions: systematic feasibility studies” *Supercond. Sci. Technol.* **23**, 014005 (2010)
122. S. H. Wee, A. Goyal, Y. Zuev, C. Cantoni, V. Selvamanickam, and E. D. Specht, “Formation of self-assembled, double-perovskite, Ba_2YNbO_6 nanocolumns and their contribution to flux-pinning and J_c in Nb-doped $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ films”, *Appl. Phys. Exp.* **3**, 023101 (2010).
123. M. Marchevsky, Y. Xie, and V. Selvamanickam, “Quench detection method for 2G HTS wire”, *Supercond. Sci. Technol.* **23**, 034016 (2010)
124. J. R. Thompson, J. W. Sinclair, D. K. Christen, Y. Zhang, Y. L. Zuev, C. Cantoni, Y. Chen and V. Selvamanickam, “Field, temperature, and angle dependent critical current density $J_c(H, T, \theta)$ in coated conductors obtained via contact-free methods”, *Supercond. Sci. Technol.* **23**, 014002 (2010)
125. A. Xu, J. J. Jaroszynski, F. Kametani, Z. Chen, D. C. Larbalestier, Y. L. Viouchkov, Y. Chen, Y. Xie and V. Selvamanickam, “Angular dependence of J_c for YBCO coated conductors at low temperature and very high magnetic fields”, *Supercond. Sci. Technol.* **23**, 014003 (2010)

126. L. Stan, Y. Chen, X. Xiong, T. G. Holesinger, B. Maiorov, L. Civale, R. F. DePaula, V. Selvamanickam and Q. X. Jia, "Investigation of (Y,Gd)Ba₂Cu₃O_{7-x} grown by MOCVD on a simplified IBAD MgO template" *Supercond. Sci. Technol.* **23**, 014011 (2010)
127. O. Polat, T. Aytug, M. P. Paranthaman, K. J. Leonard, A. R. Lupini, H. M. Meyer, K. Kim, X. F. Qiu, S. Cook, J. R. Thompson, D. K. Christen, A. Goyal, X. Xiong, and V. Selvamanickam, "An evaluation of phase separated, self-assembled LaMnO₃-MgO nanocomposite films directly on IBAD-MgO as buffer layers for flux pinning enhancements in YBa₂Cu₃O_{7-δ} coated conductors", *J. Mat. Res.* **25**, 437 (2010)
128. E. Martine, L. A. Angurel, J. Pelegrin, Y. Xie, and V. Selvamanickam, "Thermal stability analysis of YBCO-coated conductors subject to over-currents" *Supercond. Sci Technol*, **23**, 025011 (2010)
129. V. Selvamanickam, Y. Chen, J. Xie, Y. Zhang, A. Guevara, I. Kesgin, G. Majkic, and M. Martchevsky, "Influence of Zr and Ce Doping on Electromagnetic Properties of (Gd,Y)-Ba-Cu-O Superconducting Tapes Fabricated by Metal Organic Chemical Vapor Deposition", *Physica C* **469**, 2037 (2009)
[doi:10.1016/j.physc.2009.08.011](https://doi.org/10.1016/j.physc.2009.08.011)
130. V. Selvamanickam, S. Sambandam, A. Sundaram, S. Lee, A. Rar, X. Xiong, A. Alemu, C. Boney, and A. Freundlich, "Germanium films with strong in-plane and out-of-plane texture on flexible, randomly textured metal substrates" *J. Crystal Growth* **311**, 4553 (2009) [doi:10.1016/j.jcrysgro.2009.08.030](https://doi.org/10.1016/j.jcrysgro.2009.08.030)
131. V. Selvamanickam, Y. Chen, X. Xiong, Y. Y. Xie, M. Martchevski, A. Rar, Y. Qiao, R. M. Schmidt, A. Knoll, K. P. Lenseth, and C. S. Weber, "High Performance 2G wires : From R&D to Pilot-scale Manufacturing", *IEEE Trans. Appl. Supercond.* **19**, 3225 (2009) online at http://www.ewh.ieee.org/tc/csc/europe/newsforum/pdf/SelvamanickamVSetal_3MA01.pdf
132. V. Selvamanickam and B. Zhang, "Melt-Textured Growth of Grain Aligned Bulk Oxide Thermoelectrics" in *Mater. Res. Soc. Symp. Proc. Materials and Devices for Thermal-to-Electric Energy Conversion* ed. J. Yang, G. S. Nolas, K. Koumoto, Y. Grin 1166-N09-07 (2009).
133. V. Selvamanickam, S. Sambandam, A. Sundaram, S. Lee, and X. Xiong, "Single crystalline-like germanium films on flexible, lattice mismatched substrates for photovoltaic applications", *Proc. Photovoltaics Spec. Conf.* Philadelphia, June 8-12, 2009, pp. 733 – 737.

BOOK CHAPTER

1. V. Selvamanickam 'HTS wires and tapes' in *High temperature superconductors (HTS) for energy applications* ed. Ziad Melhem, Woodhead Publishing, London, 2012, pp.34-68.