***Background References for CNT Synthesis***

The table on the following pages contains a comprehensive list of publications relating to continuously-spun CNT aerogel generated from floating catalyst CVD processes between January 2000 and June 2016. Thomson-Reuters Web of Science, Google Scholar and Scopus have been mined using search terms such as CNT Fibre, CNT Fiber, CNT aerogel, CNT mat, CNT sheets etc. and by searching for key authors. While the authors have made every effort to ensure this list is accurate and complete, we accept some articles may have slipped through the net if the search terms did not encompass them.

The papers prior to 2004, listed in grey, show the state of the art which led to the continuous-spinning FC-CVD process, which has enabled the one-step scale up of the production of macroscopic CNT materials. These are included as interest and context for the reader. There are a few references included where, while the CNT aerogel material was not continuously extracted from the reactor system, the authors are essentially running the same process – these are indicated in the Comments column.

*Table headings key:*

Focus – Main topic of paper; Shows how the publications were categorized for the bar chart in Fig 1 of the publication

* S = Synthesis of FC-CVD CNT aerogel materials and by their nature these publications also include characterization too.
* C = Characterization of FC-CVD CNT aerogel materials
* A = Focus is on post-processing of FC-CVD CNT aerogel materials and /or testing the materials for a specific application
* R = Review pure CNT materials, including FC-CVD CNT aerogels

Citations = Number of times publication has been cited, according to the Thomson-Reuters Web of Science database (as of June 2016), Note that values for publications in 2016 have not been included as they are few and far between at the time of submission.

JIF = Journal Impact Factor (for 2015)

**Supplementary Table 1**

| **Year** | **Focus** | **Paper Details** | **DOI** | **Comments** |
| --- | --- | --- | --- | --- |
| ***2000*** | S | *Ci L, Li Y, Wei B, Liang J, Xu C, Wu D. Preparation of carbon nanofibers by the floating catalyst method. Carbon N Y 2000;38:1933–7.* | *10.1016/S0008-6223(00)00030-0* |  |
| ***2001*** |  |  |  |  |
| ***2002*** | S | *Zhu HW, Xu CL, Wu DH, Wei BQ, Vajtai R, Ajayan PM. Direct synthesis of long single-walled carbon nanotube strands. Science (80- ) 2002;296:884–6.* | *10.1126/science.1066996* |  |
| ***2003*** |  |  |  |  |
| **2004** | S | Li Y-L, Kinloch I a, Windle AH. Direct spinning of carbon nanotube fibers from chemical vapor deposition synthesis. Science 2004;304:276–8. | 10.1126/science.1094982 |  |
|  | S | Wei J, Jiang B, Wu D, Wei B. Large-Scale Synthesis of Long Double-Walled Carbon Nanotubes. J Phys Chem B 2004;108:8844–7. | 10.1021/jp049434x | batch process, no extraction |
| **2005** | C | Motta M, Li YL, Kinloch I, Windle A. Mechanical properties of continuously spun fibers of carbon nanotubes. Nano Lett 2005;5:1529–33. | 10.1021/nl050634+ |  |
| **2006** |  |  |  |  |
| **2007** | S | Li Y-L, Zhang L-H, Zhong X-H, Windle AH. Synthesis of high purity single-walled carbon nanotubes from ethanol by catalytic gas flow CVD reactions. Nanotechnology 2007;18:225604. | 10.1088/0957-4484/18/22/225604 |  |
|  | C | Koziol K, Vilatela J, Moisala A, Motta M, Cunniff P, Sennett M, et al. High-performance carbon nanotube fiber. Science 2007;318:1892–5. | 10.1126/science.1147635 |  |
|  | C | Motta M, Moisala a., Kinloch I a., Windle AH. High Performance Fibres from “Dog Bone” Carbon Nanotubes. Adv Mater 2007;19:3721–6. :. | 10.1002/adma.200700516 |  |
|  | S | Motta M, Kinloch I, Moisala A, Premnath V, Pick M, Windle A. The parameter space for the direct spinning of fibres and films of carbon nanotubes. Phys E Low-Dimensional Syst Nanostructures 2007;37:40–3. | 10.1016/j.physe.2006.07.005 |  |
|  | A | LI C, Wang K, Wei J, Wei B, Zhu H, Wang Z, et al. Luminescence of carbon nanotube bulbs. Chinese Sci Bull 2007;52:113–7. | 10.1007/s11434-007-2211-8 |  |
| **2008** | A | Li Y-L, Zhong X-H, Windle AH. Structural changes of carbon nanotubes in their macroscopic films and fibers by electric sparking processing. Carbon N Y 2008;46:1751–6. | 10.1016/j.carbon.2008.07.021 |  |
| **2008** | S | Stano KL, Koziol K, Pick M, Motta MS, Moisala A, Vilatela JJ, et al. Direct spinning of carbon nanotube fibres from liquid feedstock. Int J Mater Form 2008;1:59–62. | 10.1007/s12289-008-0380-x |  |
|  | S | Motta MS, Moisala A, Kinloch IA, Windle AH. The role of sulphur in the synthesis of carbon nanotubes by chemical vapour deposition at high temperatures. J Nanosci Nanotechnol 2008;8:2442–9. | 10.1166/jnn.2008.500 |  |
|  | S | Chaffee J, Lashmore D, Lewis D, Mann J, Schauer M, White B. Direct Synthesis of CNT Yarns and Sheets. Nsti Nanotech 2008, Vol 3, Tech Proc 2008;3:118–21. |  |  |
|  | S | Lashmore D, White B, Schauer M, Mann J. Synthesis and electronic properties SWCNT sheets. Mater Res Soc Symp Proc 2008;1081E:No pp. given, Paper #: 1081–P06 – 09. | 10.1557/PROC-1081-P06-09 |  |
| **2009** | A | Davies RJ, Riekel C, Koziol KK, Vilatela JJ, Windle AH. Structural studies on carbon nanotube fibres by synchrotron radiation microdiffraction and microfluorescence. J Appl Crystallogr 2009;42:1122–8. | 10.1107/S0021889809036280 |  |
|  | C | Mora RJ, Vilatela JJ, Windle a. H. Properties of composites of carbon nanotube fibres. Compos Sci Technol 2009;69:1558–63. | 10.1016/j.compscitech.2008.11.038 |  |
|  | A | Cheng Q, Bao J, Park J, Liang Z, Zhang C, Wang B. High mechanical performance composite conductor: Multi-walled carbon nanotube sheet/bismaleimide nanocomposites. Adv Funct Mater 2009;19:3219–25. | 10.1002/adfm.200900663 |  |
| **2010** | S | Feng J-M, Wang R, Li Y-L, Zhong X-H, Cui L, Guo Q-J, et al. One-step fabrication of high quality double-walled carbon nanotube thin films by a chemical vapor deposition process. Carbon N Y 2010;48:3817–24. | 10.1016/j.carbon.2010.06.046 | batch process, no extraction |
|  | S | Zhong X-H, Li Y-L, Liu Y-K, Qiao X-H, Feng Y, Liang J, et al. Continuous multilayered carbon nanotube yarns. Adv Mater 2010;22:692–6. | 10.1002/adma.200902943 |  |
|  | A | Zhu Z, Song W, Burugapalli K, Moussy F, Li Y-L, Zhong X-H. Nano-yarn carbon nanotube fiber based enzymatic glucose biosensor. Nanotechnology 2010;21:165501. | 10.1088/0957-4484/21/16/165501 |  |
|  | C | Vilatela JJ, Windle AH. Yarn-like carbon nanotube fibers. Adv Mater 2010;22:4959–63. | 10.1002/adma.201002131 |  |
|  | S | Conroy D, Moisala A, Cardoso S, Windle A, Davidson J. Carbon nanotube reactor: Ferrocene decomposition, iron particle growth, nanotube aggregation and scale-up. Chem Eng Sci 2010;65:2965–77. | 10.1016/j.ces.2010.01.019 |  |
| **2010** | A | Fraser IS, Motta MS, Schmidt RK, Windle AH. Continuous production of flexible carbon nanotube-based transparent conductive films. Sci Technol Adv Mater 2010;11:045004. | 10.1088/1468-6996/11/4/045004 |  |
|  | A | Ryu J, Kim H, Lee S, Hahn HT, Lashmore D. Carbon Nanotube Mat as Mediator-Less Glucose Sensor Electrode. J Nanosci Nanotechnol 2010:941–7. | 10.1166/jnn.2010.1892 |  |
|  | C | Schauer MW, Lashmore DS, Lewis DJ, Lewis BM, Towle EC. Strength and Electrical Conductivity of Carbon Nanotube Yarns. Mater Res Soc Symp Proc 2010;1258:1258–R09 – 04. | 10.1557/PROC-1258-R09-04 |  |
|  | R | Chou TW, Gao L, Thostenson ET, Zhang Z, Byun JH. An assessment of the science and technology of carbon nanotube-based fibers and composites. Compos Sci Technol 2010;70:1–19. | 10.1016/j.compscitech.2009.10.004 |  |
|  | A | Cheng Q, Wang B, Zhang C, Liang Z. Functionalized carbon-nanotube sheet/bismaleimide nanocomposites: Mechanical and electrical performance beyond carbon-fiber composites. Small 2010;6:763–7. | 10.1002/smll.200901957 |  |
| **2011** | S | Park Y-S, Huh M-Y, Kang S-J, Lee S-H, An K-H. Parametric study on synthesis of carbon nanotubes by the vertical spray pyrolysis method. Carbon Lett 2011;12:102–6. | 10.5714/CL.2011.12.2.102 | batch process, no extraction |
|  | A | Boncel S, Sundaram RM, Windle AH, Koziol KKK. Enhancement of the mechanical properties of directly spun CNT fibers by chemical treatment. ACS Nano 2011;5:9339–44. | 10.1021/nn202685x |  |
|  | C | Vilatela JJ, Deng L, Kinloch I a., Young RJ, Windle a. H. Structure of and stress transfer in fibres spun from carbon nanotubes produced by chemical vapour deposition. Carbon N Y 2011;49:4149–58. | 10.1016/j.carbon.2011.05.045 |  |
|  | C | Vilatela JJ, Elliott JA, Windle AH. A model for the strength of yarn-like carbon nanotube fibers. ACS Nano 2011;5:1921–7. | 10.1021/nn102925a |  |
|  | S | Sundaram RM, Koziol KKK, Windle AH. Continuous direct spinning of fibers of single-walled carbon nanotubes with metallic chirality. Adv Mater 2011;23:5064–8. | 10.1002/adma.201102754 |  |
|  | C | Li Q, Kang Y-L, Qiu W, Li Y-L, Huang G-Y, Guo J-G, et al. Deformation mechanisms of carbon nanotube fibres under tensile loading by in situ Raman spectroscopy analysis. Nanotechnology 2011;22:225704. | 10.1088/0957-4484/22/22/225704 |  |
| **2012** | C | Wu AS, Nie X, Hudspeth MC, Chen WW, Chou T-W, Lashmore DS, et al. Strain rate-dependent tensile properties and dynamic electromechanical response of carbon nanotube fibers. Carbon N Y 2012;50:3876–81. | 10.1016/j.carbon.2012.04.031 |  |
|  | R | Wu AS, Chou T-W. Carbon nanotube fibers for advanced composites. Mater Today 2012;15:302–10. | 10.1016/S1369-7021(12)70135-9 |  |
|  | C | Wu AS, Chou T-W, Gillespie JW, Lashmore D, Rioux J. Electromechanical response and failure behaviour of aerogel-spun carbon nanotube fibres under tensile loading. J Mater Chem 2012;22:6792. | 10.1039/c2jm15869h |  |
|  | R | Choo H, Jung Y, Jeong Y, Kim HC, Ku B. Fabrication and Applications of Carbon Nanotube Fibers. Carbon Lett 2012;13:191–204. | 10.5714/CL.2012.13.4.191 |  |
|  | R | Park J, Lee KH. Carbon nanotube yarns. Korean J Chem Eng 2012;29:277–87. | 10.1007/s11814-012-0016-1 |  |
|  | S | Zhong X-H, Li Y-L, Feng J-M, Kang Y-R, Han S-S. Fabrication of a multifunctional carbon nanotube “cotton” yarn by the direct chemical vapor deposition spinning process. Nanoscale 2012;4:5614–8. | 10.1039/c2nr31309j |  |
|  | A | Vilatela JJ, Khare R, Windle AH. The hierarchical structure and properties of multifunctional carbon nanotube fibre composites. Carbon N Y 2012;50:1227–34. | 10.1016/j.carbon.2011.10.040 |  |
|  | A | Janas D, Sundaram R, Koziol KKK. Surface modification of directly spun carbon nanotube films. Mater Lett 2012;79:32–4. | 10.1016/j.matlet.2012.03.090 |  |
|  | A | Evanoff K, Benson J, Schauer M, Kovalenko I, Lashmore D, Ready WJ, et al. Ultra-Strong Silicon-Coated Carbon Nanotube Nonwoven Fabric as Multifunctional Lithium Ion Battery Anodes. ACS Nano 2012;6:9837–45. | 10.1021/nn303393p |  |
|  | C | Cimpoiasu E, Sandu V, Levin GA, Simpson A, Lashmore D. Angular magnetoresistance of stretched carbon nanotube sheets. J Appl Phys 2012;111. | 10.1063/1.4729538 |  |
|  | C | Wu AS, Nie X, Hudspeth MC, Chen WW, Chou TW, Lashmore DS, et al. Carbon nanotube fibers as torsion sensors. Appl Phys Lett 2012;100:21–5. | 10.1063/1.4719058 |  |
|  | C | Cimpoiasu E, Lashmore D, White B, Levin GA. Anisotropic Magnetoresistance of Stretched Sheets of Carbon Nanotubes. MRS Proc 2012;1407:mrsf11–1407 – aa05–41. | 10.1557/opl.2012.360 |  |
| **2012** | R | Lu W, Zu M, Byun J, Kim B, Chou T. State of the art of carbon nanotube fibers: opportunities and challenges. Adv Mater 2012;24:1805–33. doi:10.1002/adma.201104672. | 10.1002/adma.201104672 |  |
|  | S | Vilatela JJ, Windle a H. A Multifunctional Yarn Made Of Carbon Nanotubes. J Eng Fiber Fabr 2012;7:23–8. |  |  |
|  | R | Sun G, Zhang Y, Zheng L. Fabrication of microscale carbon nanotube fibers. J Nanomater 2012;2012. | 10.1155/2012/506209 |  |
|  | A | Zhu Z, Garcia-Gancedo L, Flewitt A, Moussy F, Li Y, Milne W. Design of carbon nanotube fiber microelectrode for glucose biosensing. J Chem Technol Biotechnol 2012;87:256–62. | 10.1002/jctb.2708 |  |
|  | A | Misak HE, Sabelkin V, Mall S, Asmatulu R, Kladitis PE. Failure analysis of carbon nanotube wires. Carbon N Y 2012;50:4871–9. | 10.1016/j.carbon.2012.06.015 |  |
|  | C | Sabelkin V, Misak HE, Mall S, Asmatulu R, Kladitis PE. Tensile loading behavior of carbon nanotube wires. Carbon N Y 2012;50:2530–8. | 10.1016/j.carbon.2012.01.077 |  |
|  | C | Li S, Park JG, Liang Z, Siegrist T, Liu T, Zhang M, et al. In situ characterization of structural changes and the fraction of aligned carbon nanotube networks produced by stretching. Carbon N Y 2012;50:3859–67. | 10.1016/j.carbon.2012.04.029 |  |
|  | A | Park JG, Cheng Q, Lu J, Bao J, Li S, Tian Y, et al. Thermal conductivity of MWCNT/epoxy composites: The effects of length, alignment and functionalization. Carbon N Y 2012;50:2083–90. | 10.1016/j.carbon.2011.12.046 |  |
|  | A | Cheng Q, Li M, Jiang L, Tang Z. Bioinspired layered composites based on flattened double-walled carbon nanotubes. Adv Mater 2012;24:1838–43. | 10.1002/adma.201200179 |  |
| **2013** | S | Zhong X, Wang R, Yangyang W, Yali L. Carbon nanotube and graphene multiple-thread yarns. Nanoscale 2013;5:1183–7. | 10.1039/c2nr32735j | Basically same process |
|  | A | Choi YM, Choo H, Yeo H, You NH, Lee DS, Ku BC, et al. Chemical method for improving both the electrical conductivity and mechanical properties of carbon nanotube yarn via intramolecular cross-dehydrogenative coupling. ACS Appl Mater Interfaces 2013;5:7726–30. | 10.1021/am4026104 |  |
|  | A | Janas D, Boncel S, Marek A a., Koziol KK. A facile method to tune electronic properties of carbon nanotube films. Mater Lett 2013;106:137–40. | 10.1016/j.matlet.2013.04.111 |  |
| **2013** | C | Qiu J, Terrones J, Vilatela JJ, Vickers ME, Elliott JA, Windle AH. Liquid Infiltration into Carbon Nanotube Fibers : E ff ect on Structure and Electrical Properties. ACS Nano 2013;7:8412–22. | 10.1021/nn401337m |  |
|  | C | Janas D, Koziol KK. Rapid electrothermal response of high-temperature carbon nanotube film heaters. Carbon N Y 2013;59:457–63. | 10.1016/j.carbon.2013.03.039 |  |
|  | A | Janas D, Cabrero-Vilatela A, Bulmer J, Kurzepa L, Koziol KK. Carbon nanotube wires for high-temperature performance. Carbon N Y 2013;64:305–14. | 10.1016/j.carbon.2013.07.067 |  |
|  | A | Janas D, Vilatela AC, Koziol KKK. Performance of carbon nanotube wires in extreme conditions. Carbon N Y 2013;62:438–46. | 10.1016/j.carbon.2013.06.029 |  |
|  | C | Janas D, Czechowski N, Krajnik B, Mackowski S, Koziol KK. Electroluminescence from carbon nanotube films resistively heated in air. Appl Phys Lett 2013;102:181104. | 10.1063/1.4804296 |  |
|  | A | Benson J, Kovalenko I, Boukhalfa S, Lashmore D, Sanghadasa M, Yushin G. Multifunctional CNT-polymer composites for ultra-tough structural supercapacitors and desalination devices. Adv Mater 2013;25:6625–32. | 10.1002/adma.201301317 |  |
|  | A | Yang Z, Deng J, Chen X, Ren J, Peng H. A highly stretchable, fiber-shaped supercapacitor. Angew Chemie - Int Ed 2013;52:13453–7. | 10.1002/anie.201307619 |  |
|  | A | Cai L, Song L, Luan P, Zhang Q, Zhang N, Gao Q, et al. Super-stretchable, Transparent Carbon Nanotube-Based Capacitive Strain Sensors for Human Motion Detection. Sci Rep 2013;3:3048. doi:10.1038/srep03048. | 10.1038/srep03048 |  |
|  | A | Yu H, Cheng D, Williams TS, Severino J, De Rosa IM, Carlson L, et al. Rapid oxidative activation of carbon nanotube yarn and sheet by a radio frequency, atmospheric pressure, helium and oxygen plasma. Carbon N Y 2013;57:11–21. doi:10.1016/j.carbon.2013.01.010. | 10.1016/j.carbon.2013.01.010 |  |
|  | A | Misak HE, Sabelkin V, Mall S, Kladitis PE. Thermal fatigue and hypothermal atomic oxygen exposure behavior of carbon nanotube wire. Carbon N Y 2013;57:42–9. | 10.1016/j.carbon.2013.01.028 |  |
|  | C | Misak HE, Asmatulu R, Sabelkin V, Mall S, Kladitis PE. Tension-tension fatigue behavior of carbon nanotube wires. Carbon N Y 2013;52:225–31. | 10.1016/j.carbon.2012.09.024 |  |
| **2013** | A | Kim JW, Siochi EJ, Carpena-Núñez J, Wise KE, Connell JW, Lin Y, et al. Polyaniline/carbon nanotube sheet nanocomposites: Fabrication and characterization. ACS Appl Mater Interfaces 2013;5:8597–606. | 10.1021/am402077d |  |
| **2014** | A | Hill FA, Havel TF, Lashmore D, Schauer M, Livermore C. Storing energy and powering small systems with mechanical springs made of carbon nanotube yarn. Energy 2014;76:318–25. | 10.1016/j.energy.2014.08.021 |  |
|  | S | Wang JN, Luo XG, Wu T, Chen Y. High-strength carbon nanotube fibre-like ribbon with high ductility and high electrical conductivity. Nat Commun 2014;5:3848. | 10.1038/ncomms4848 |  |
|  | S | Paukner C, Koziol KKK. Ultra-pure single wall carbon nanotube fibres continuously spun without promoter. Sci Rep 2014;4:3903. | 10.1038/srep03903 |  |
|  | R | Lekawa-Raus A, Patmore J, Kurzepa L, Bulmer J, Koziol K. Electrical Properties of Carbon Nanotube Based Fibers and Their Future Use in Electrical Wiring. Adv Funct Mater 2014;24:3661–82. | 10.1002/adfm.201303716 |  |
|  | C | Lekawa-Raus A, Koziol KKK, Windle AH. Piezoresistive effect in carbon nanotube fibers. ACS Nano 2014;8:11214–24. | 10.1021/nn503596f |  |
|  | A | Janas D, Herman AP, Boncel S, Koziol KKK. Iodine monochloride as a powerful enhancer of electrical conductivity of carbon nanotube wires. Carbon N Y 2014;73:225–33. | 10.1016/j.carbon.2014.02.058 |  |
|  | C | Terrones J, Windle AH, Elliott J a. The electro-structural behaviour of yarn-like carbon nanotube fibres immersed in organic liquids. Sci Technol Adv Mater 2014;15:055008. | 10.1088/1468-6996/15/5/055008 |  |
|  | S | Víctor Reguero, Belén Alemán, Bartolomé Mas JJV. Controlling Carbon Nanotube Type in Macroscopic Fibers Synthesized by the Direct Spinning Process. Chem Mater 2014;26:3550–7. | 10.1021/cm501187x |  |
|  | S | Gspann T, Smail F, Windle A. Spinning of carbon nanotube fibres using the floating catalyst high temperature route: purity issues and the critical role of sulphur. Faraday Discuss 2014;173:2–7. | 10.1039/C4FD00066H |  |
|  | C | Cahay M, Murray PT, Back TC, Fairchild S, Boeckl J, Bulmer J, et al. Hysteresis during field emission from chemical vapor deposition synthesized carbon nanotube fibers. Appl Phys Lett 2014;105:173107. | 10.1063/1.4900787 |  |
| **2014** | C | Terrones J, Elliott JA, Vilatela JJ, Windle AH. Electric Field-Modulated Non-Ohmic Behavior of Carbon Nanotube Fibers in Polar Liquids. ACS Nano 2014;8:8497–504. | 10.1021/nn5030835 |  |
|  | A | Janas D, Boncel S, Koziol KKK. Electrothermal halogenation of carbon nanotube films. Carbon N Y 2014;73:259–66. | 10.1016/j.carbon.2014.02.062 |  |
|  | A | Janas D, Herman AP, Boncel S, Koziol KKK. Swift modification of resistively heated carbon nanotube films by the action of hydrogen peroxide. Mater Lett 2014;119:115–8. | 10.1016/j.matlet.2014.01.001 |  |
|  | A | Janas D, Kreft SK, Boncel S, Koziol KKK. Durability and surface chemistry of horizontally aligned CNT films as electrodes upon electrolysis of acidic aqueous solution. J Mater Sci 2014;49:7231–43. | 10.1007/s10853-014-8430-x |  |
|  | A | Janas D, Koziol KK. Improved Performance of Ultra-Fast Carbon Nanotube Film Heaters. J Autom Control Eng 2014;2:150–3. | 10.12720/joace.2.2.150-153 |  |
|  | C | Janas D, Czechowski N, Mackowski S, Koziol KK. Direct evidence of delayed electroluminescence from carbon nanotubes on the macroscale. Appl Phys Lett 2014;104:261107. | 10.1063/1.4886800 |  |
|  | R | Janas D, Koziol KK. A review of production methods of carbon nanotube and graphene thin films for electrothermal applications. Nanoscale 2014;6:3037–45. | 10.1039/c3nr05636h |  |
|  | C | Cahay M, Murray PT, Back TC, Fairchild S, Boeckl J, Bulmer J, et al. Hysteresis during field emission from chemical vapor deposition synthesized carbon nanotube fibers. Appl Phys Lett 2014;105:173107. | 10.1063/1.4900787 |  |
|  | A | Chen J, Trevarthen JA, Deng T, Bradley MSA, Rahatekar SS, Koziol KKK. Aligned carbon nanotube reinforced high performance polymer composites with low erosive wear. Compos Part A Appl Sci Manuf 2014;67:86–95. | 10.1016/j.compositesa.2014.08.009 |  |
|  | A | Lekawa-Raus A, Haladyj P, Koziol K. Carbon nanotube fiber-silver hybrid electrical conductors. Mater Lett 2014;133:186–9. | 10.1016/j.matlet.2014.06.177 |  |
|  | A | Kurzepa L, Lekawa-Raus A, Patmore J, Koziol K. Replacing copper wires with carbon nanotube wires in electrical transformers. Adv Funct Mater 2014;24:619–24. | 10.1002/adfm.201302497 |  |
|  | A | Lekawa-Raus A, Kurzepa L, Peng X, Koziol K. Towards the development of carbon nanotube based wires. Carbon N Y 2014;68:597–609. | 10.1016/j.carbon.2013.11.039 |  |
| **2014** | A | Liu S, Martin C, Lashmore D, Schauer M, Livermore C. Regenerative braking systems with torsional springs made of carbon nanotube yarn. J Phys Conf Ser 2014;557:012060. | 10.1088/1742-6596/557/1/012060 |  |
|  | A | He S, Wei J, Guo F, Xu R, Li C, Cui X, et al. A large area, flexible polyaniline/buckypaper composite with a core–shell structure for efficient supercapacitors. J Mater Chem A 2014;2:5898–902. | 10.1039/C4TA00089G | batch process, no extraction |
|  | A | Sun H, Wei J, Sun J, Ning C, Zhu J, Jia Y, et al. Effect of microwave irradiation on carbon nanotube fibers: exfoliation, structural change and strong light emission. RSC Adv 2014;4:15502. | 10.1039/c4ra01203h | batch process, no extraction |
|  | A | Misak H, Asmatulu R, Mall S. Tensile behavior of carbon nanotube multi-yarn coated with polyester. J Compos Mater 2014;49:1787–93. doi:10.1177/0021998314540196. | 10.1177/0021998314540196 |  |
|  | A | Misak HE, Mall S. Investigation into microstructure of carbon nanotube multi-yarn. Carbon N Y 2014;72:321–7. doi:10.1016/j.carbon.2014.02.012. | 10.1016/j.carbon.2014.02.012 |  |
|  | A | Kim JW, Sauti G, Siochi EJ, Smith JG, Wincheski RA, Cano RJ, et al. Toward high performance thermoset/carbon nanotube sheet nanocomposites via resistive heating assisted infiltration and cure. ACS Appl Mater Interfaces 2014;6:18832–43. | 10.1021/am5046718 |  |
| **2015** | S | Lee K-H, Lee S-H, Park J, Kim H-R, Lee J. Synthesis of high-quality carbon nanotube fibers by controlling the effects of sulfur on the catalyst agglomeration during the direct spinning process. RSC Adv 2015;5:41894–900. | 10.1039/C5RA04691B |  |
|  | A | Vilatela JJ, Marcilla R. Tough Electrodes: Carbon Nanotube Fibers as the Ultimate Current Collectors/Active Material for Energy Management Devices. Chem Mater 2015;27:6901–17. | 10.1021/acs.chemmater.5b02783 |  |
|  | C | Gspann TS, Montinaro N, Pantano A, Elliott JA, Windle AH. Mechanical properties of carbon nanotube fibres: St Venant’s principle at the limit and the role of imperfections. Carbon N Y 2015;93:1021–33. | 10.1016/j.carbon.2015.05.065 |  |
|  | C | Gspann TS, Montinaro N, Windle AH. CNT fibres - yarns between the extremes. MRS Proc 2015;1752:mrsf14–1752 – mm11–09. | 10.1557/opl.2015.251 |  |
| **2015** | S | Sundaram RM, Windle AH. Effect of Carbon Precursors on the Structure and Properties of Continuously Spun Carbon Nanotube Fibers. Sci Adv Mater 2015;7:643–53. | 10.1166/sam.2015.2147 |  |
|  | C | Lekawa-Raus A, Kurzepa L, Kozlowski G, Hopkins SC, Wozniak M, Lukawski D, et al. Influence of atmospheric water vapour on electrical performance of carbon nanotube fibres. Carbon N Y 2015;87:18–28. | 10.1016/j.carbon.2015.02.018 |  |
|  | C | Montinaro N, Gspann TS, Pantano A, Elliott JA, Windle AH. Stress Transfer within CNT Fibres: A FEA Approach. Procedia Eng 2015;109:435–40. | 10.1016/j.proeng.2015.06.258 |  |
|  | S | Alemán B, Reguero V, Mas B, Vilatela JJ. Strong Carbon Nanotube Fibers by Drawing Inspiration from Polymer Fiber Spinning. ACS Nano 2015;9:7392–8. | 10.1021/acsnano.5b02408 |  |
|  | A | Yue H, Monreal-Bernal A, Fernández-Blázquez JP, Llorca J, Vilatela JJ. Macroscopic CNT fibres inducing non-epitaxial nucleation and orientation of semicrystalline polymers. Sci Rep 2015;5:16729. | 10.1038/srep16729 |  |
|  | A | Janas D, Kreft SK, Koziol KKK. Steam reforming on reactive carbon nanotube membranes. J Ind Eng Chem 2015;25:222–8. | 10.1016/j.jiec.2014.10.038 |  |
|  | A | Lekawa-Raus A, Walczak K, Kozlowski G, Hopkins SC, Wozniak M, Glowacki BA, et al. Low temperature electrical transport in modified carbon nanotube fibres. Scr Mater 2015;106:34–7. | 10.1016/j.scriptamat.2015.04.029 |  |
|  | A | Krukiewicz K, Bulmer JS, Janas D, Koziol KKK, Zak JK. Poly(3,4-ethylenedioxythiophene) growth on the surface of horizontally aligned MWCNT electrode. Appl Surf Sci 2015;335:130–6. | 10.1016/j.apsusc.2015.02.039 |  |
|  | C | Lekawa-Raus A, Walczak K, Kozlowski G, Wozniak M, Hopkins SC, Koziol KK. Resistance-temperature dependence in carbon nanotube fibres. Carbon N Y 2015;84:118–23. | 10.1016/j.carbon.2014.11.062 |  |
|  | A | Liu S, Martin C, Lashmore D, Schauer M, Livermore C. Carbon nanotube torsional springs for regenerative braking systems. J Micromechanics Microengineering 2015;25:104005. | 10.1088/0960-1317/25/10/104005 |  |
|  | C | Yu J, Wang L, Lai X, Pei S, Zhuang Z, Meng L, et al. A durability study of carbon nanotube fiber based stretchable electronic devices under cyclic deformation. Carbon N Y 2015;94:352–61. | 10.1016/j.carbon.2015.07.009 |  |
| **2015** | C | Abu Obaid A, Heider D, Gillespie JW. Investigation of electro-mechanical behavior of carbon nanotube yarns during tensile loading. Carbon N Y 2015;93:731–41. | 10.1016/j.carbon.2015.05.091 |  |
|  | A | Liu P, Tran TQ, Fan Z, Duong HM. Formation mechanisms and morphological effects on multi-properties of carbon nanotube fibers and their polyimide aerogel-coated composites. Compos Sci Technol 2015;117:114–20. | 10.1016/j.compscitech.2015.06.009 |  |
|  | A | Liu P, Lam A, Fan Z, Tran TQ, Duong HM. Advanced multifunctional properties of aligned carbon nanotube-epoxy thin film composites. Mater Des 2015;87:600–5. | 10.1016/j.matdes.2015.08.068 |  |
|  | A | Xu P, Wei B, Cao Z, Zheng J, Gong K, Li F, et al. Stretchable Wire-Shaped Asymmetric Supercapacitors Based on Pristine and MnO2 Coated Carbon Nanotube Fibers. ACS Nano 2015;9:6088–96. | 10.1021/acsnano.5b01244 |  |
|  | A | Cheng H, Koh KLP, Liu P, Thang TQ, Duong HM. Continuous self-assembly of carbon nanotube thin films and their composites for supercapacitors. Colloids Surfaces A Physicochem Eng Asp 2015;481:626–32. | 10.1016/j.colsurfa.2015.06.039 |  |
|  | A | Guo F, Li C, Wei J, Xu R, Zhang Z, Cui X, et al. Fabrication of highly conductive carbon nanotube fibers for electrical application. Mater Res Express 2015;2:095604. | 10.1088/2053-1591/2/9/095604 |  |
|  | A | Xu R, Wei J, Guo F, Cui X, Zhang T, Zhu H, et al. Highly conductive, twistable and bendable polypyrrole–carbon nanotube fiber for efficient supercapacitor electrodes. RSC Adv 2015;5:22015–21. | 10.1039/C5RA01917F |  |
|  | A | Misak HE, Mall S. Electrical conductivity, strength and microstructure of carbon nanotube multi-yarns. Mater Des 2015;75:76–84. doi:10.1016/j.matdes.2015.03.020. | 10.1016/j.matdes.2015.03.020 |  |
|  | C | Xu F, Wei B, Liu W, Zhu H, Zhang Y, Qiu Y. In-plane mechanical properties of carbon nanotube films fabricated by floating catalyst chemical vapor decomposition. J Mater Sci 2015;50:8166–74. doi:10.1007/s10853-015-9395-0. | 10.1007/s10853-015-9395-0 |  |
|  | A | Misak HE, Mall S. Time-dependent electrical properties of carbon nanotube yarns. New Carbon Mater 2015;30:207–13. doi:http://dx.doi.org/10.1016/S1872-5805(15)60186-X. | 10.1016/S1872-5805(15)60186-X |  |
| **2015** | A | Misak H, Asmatulu R, Whitman J, Mall S. High-Temperature Cross-Linking of Carbon Nanotube Multi-Yarn Using Polyvinylpyrrolidone as a Binding Agent. J Nanosci Nanotechnol 2015;15:2283–8. | 10.1166/jnn.2015.9592 |  |
|  | A | Xu R, Guo F, Cui X, Zhang L, Wang K, Wei J. High performance carbon nanotube based fiber-shaped supercapacitors using redox additives of polypyrrole and hydroquinone. J Mater Chem A 2015;3:22353–60. | 10.1039/C5TA06165B |  |
|  | A | Guo FM, Xu RQ, Cui X, Zang XB, Zhang L, Chen Q, et al. Highly flexible, tailorable and all-solid-state supercapacitors from carbon nanotube–MnO x composite films. RSC Adv 2015;5:89188–94. | 10.1039/C5RA16771J |  |
| **2016** | S | Hou G, Su R, Wang A, Ng V, Li W, Song Y, et al. The effect of a convection vortex on sock formation in the floating catalyst method for carbon nanotube synthesis. Carbon N Y 2016;102:513–9. | 10.1016/j.carbon.2016.02.087 |  |
|  | A | Mikhalchan A, Fan Z, Tran TQ, Liu P, Tan VBC, Tay T-E, et al. Continuous and scalable fabrication and multifunctional properties of carbon nanotube aerogels from the floating catalyst method. Carbon N Y 2016;102:409–18. | 10.1016/j.carbon.2016.02.057 |  |
|  | S | Lee S-H, Park J, Kim H-R, Lee T, Lee J, Im Y-O, et al. Synthesis of carbon nanotube fibers using the direct spinning process based on Design of Experiment (DOE). Carbon N Y 2016;100. | 10.1016/j.carbon.2016.01.034 |  |
|  | S | Xu W, Chen Y, Zhan H, Wang JN. High-Strength Carbon Nanotube Film from Improving Alignment and Densification. Nano Lett 2016:acs.nanolett.5b03863. | 10.1021/acs.nanolett.5b03863 |  |
|  | C | Alemán B, Bernal MM, Mas B, Perez EM, Reguero V, Xu G, et al. Inherent Predominance of High Chiral Angle Metallic Carbon Nanotubes in Continuous Fibers Grown From Molten Catalyst. Nanoscale 2016:4236–44. | 10.1039/C5NR07455J |  |
|  | S | Hoecker C, Smail F, Bajada M, Pick M, Boies A. Catalyst nanoparticle growth dynamics and their influence on product morphology in a CVD process for continuous carbon nanotube synthesis. Carbon N Y 2016;96:116–24. | 10.1016/j.carbon.2015.09.050 |  |
|  | A | Janas D, Koziol KKK. The influence of metal nanoparticles on electrical properties of carbon nanotubes. Appl Surf Sci 2016;376:74–8. | 10.1016/j.apsusc.2016.02.233 |  |
| **2016** | A | Xu H, Tong X, Zhang Y, Li Q, Lu W. Mechanical and electrical properties of laminated composites containing continuous carbon nanotube fi lm interleaves. Compos Sci Technol 2016;127:113–8. | 10.1016/j.compscitech.2016.02.032 |  |
|  | A | Wu T, Wang JN. Carbon nanotube springs with high tensile strength and energy density. RSC Adv 2016;6:38187–91. | 10.1039/C6RA05464A |  |
|  | S | Mas B, Alemán B, Dopico I, Martin-Bragado I, Naranjo T, Pérez EM, et al. Group 16 elements control the synthesis of continuous fibers of carbon nanotubes. Carbon N Y 2016;101:458–64. | 10.1016/j.carbon.2016.02.005 |  |
|  | C | Severino J, Yang JM, Carlson L, Hicks R. Progression of alignment in stretched CNT sheets determined by wide angle X-ray scattering. Carbon N Y 2016;100:309–17. | 10.1016/j.carbon.2016.01.005 |  |
|  | A | Yu J, Lu W, Pei S, Gong K, Wang L, Meng L, et al. Omnidirectionally Stretchable High-Performance Supercapacitor Based on Isotropic Buckled Carbon Nanotube Films. ACS Nano 2016:acsnano.6b00752. | 10.1021/acsnano.6b00752 |  |
|  | A | Cheng X, Zhang J, Ren J, Liu N, Chen P, Zhang Y, et al. Design of a Hierarchical Ternary Hybrid for a Fiber-Shaped Asymmetric Supercapacitor with High Volumetric Energy Density. J Phys Chem C 2016;120:9685–91. | 10.1021/acs.jpcc.6b02794 |  |
|  | A | Tran TQ, Fan Z, Liu P, Myint SM, Duong HM. Super-strong and highly conductive carbon nanotube ribbons from post-treatment methods. Carbon N Y 2016;99:407–15. | 10.1016/j.carbon.2015.12.048 |  |
|  | A | Tran TQ, Fan Z, Mikhalchan A, Liu P, Duong HM. Post-Treatments for Multifunctional Property Enhancement of Carbon Nanotube Fibers from the Floating Catalyst Method. ACS Appl Mater Interfaces 2016;8:7948–56. | 10.1021/acsami.5b09912 |  |
|  | A | Wu M Le, Chen Y, Zhang L, Zhan H, Qiang L, Wang JN. High-Performance Carbon Nanotube/Polymer Composite Fiber from Layer-by-Layer Deposition. ACS Appl Mater Interfaces 2016;8:8137–44. | 10.1021/acsami.6b01130 |  |
|  | A | Luo XG, Huang XX, Wang XX, Zhong XH, Meng XX, Wang JN. Continuous Preparation of Carbon Nanotube Film and Its Applications in Fuel and Solar Cells. ACS Appl Mater Interfaces 2016;8:7818–25. | 10.1021/acsami.6b00261 |  |
| **2016** | A | XG L, Wu L, XX W, XH Z, K Z, JN W. Continuous Preparation of Copper/Carbon Nanotube Composite Films and Application in Solar Cells. Chem Sus Chem 2016;9:296–301. | 10.1002/cssc.201501342 |  |
|  | C | Li C, Xu S, Yue Y, Yang B, Wang X. Thermal characterization of carbon nanotube fiber by time-domain differential Raman. Carbon N Y 2016;103:101–8. | 10.1016/j.carbon.2016.03.003 |  |
|  | A | Misak H, Mall S. Cryogenic Tensile Strength and Fatigue Life of Carbon Nanotube Multi-Yarn. J Nanosci Nanotechnol 2016;16:3021–5. | 10.1166/jnn.2016.12466 |  |
|  | A | Misak HE, Rutledge JL, Swenson ED, Mall S. Thermal transport properties of dry spun carbon nanotube sheets. J Nanomater 2016;2016. | 10.1155/2016/9174085 |  |
|  | A | Kim JW, Sauti G, Cano RJ, Wincheski RA, Ratcliffe JG, Czabaj M, et al. Assessment of carbon nanotube yarns as reinforcement for composite overwrapped pressure vessels. Compos Part A Appl Sci Manuf 2016;84:256–65. | 10.1016/j.compositesa.2016.02.003 |  |
|  | A | Liu P, Fan Z, Mikhalchan A, Tran TQ, Jewell D, Duong HM, et al. Continuous Carbon Nanotube-based Fibers &amp; Films for Applications Requiring Enhanced Heat Dissipation. ACS Appl Mater Interfaces 2016:acsami.6b04114. | 10.1021/acsami.6b04114 |  |
|  | R | Janas, D.; Koziol, K. Carbon Nanotube Fibers and Films: Synthesis, Applications and Perspectives of the Direct-Spinning Method. Nanoscale 2016. | 10.1039/C6NR07549E |  |
|  | A | Hannula, P. M.; Peltonen, A.; Aromaa, J.; Janas, D.; Lundström, M.; Wilson, B. P.; Koziol, K.; Forsén, O. Carbon Nanotube-Copper Composites by Electrodeposition on Carbon Nanotube Fibers. Carbon N. Y. 2016, 107, 281–287. | 10.1016/j.carbon.2016.06.008 |  |
|  | C | Barnard, J. S.; Paukner, C.; Koziol, K. The Role of Carbon Precursor on Carbon Nanotube Chirality in Floating Catalytic Chemical Vapour Deposition. Nanoscale 2016, 17262–17270. | 10.1039/C6NR03895F |  |
|  | A | Hopkins, A. R.; Labatete-Goeppinger, A. C.; Kim, H.; Katzman, H. A. Space Survivability of Carbon Nanotube Yarn Material in Low Earth Orbit. Carbon N. Y. 2016, 107, 77–86. | 10.1016/j.carbon.2016.05.040 |  |
|  | A | Abdou, J. P.; Reynolds, K. J.; Pfau, M. R.; Van Staden, J.; Braggin, G. A.; Tajaddod, N.; Minus, M.; Reguero, V.; Vilatela, J. J.; Zhang, S. Interfacial Crystallization of Isotactic Polypropylene Surrounding Macroscopic Carbon Nanotube and Graphene Fibers. Polym. (United Kingdom) 2016, 91, 136–145. | 10.1016/j.polymer.2016.03.055 |  |
|  | R | Lekawa-Raus, A.; Gizewski, T.; Patmore, J.; Kurzepa, L.; Koziol, K. K. Electrical Transport in Carbon Nanotube Fibres. Scr. Mater. 2016. | 10.1016/j.scriptamat.2016.11.027 |  |
|  | C | Gspann, T. S.; Juckes, S. M.; Niven, J. F.; Johnson, M. B.; Elliott, J. A.; White, M. A.; Windle, A. H. High Thermal Conductivities of Carbon Nanotube Films and Micro-Fibres and Their Dependence on Morphology. Carbon N. Y. 2016. | 10.1016/j.carbon.2016.12.006 |  |
|  | S | Hoecker, C.; Fiona Smail, F.; Pick, M.; Boies, A. The Influence of Carbon Source and Catalyst Nanoparticles on CVD Synthesis of CNT Aerogel. Chem. Eng. J. 2016. | 10.1016/j.cej.2016.11.157 |  |
|  | C | Zhu, J. Electrical Conductivity of Carbon Nanotube Fibers Synthesized by Chemical Vapor Deposition. In Energy Science and Applied Technology ESAT 2016; CRC Press, 2016; pp. 135–137. | 10.1201/9781315375076-28 |  |
|  | S | Senokos, E.; Reguero, V.; Palma, J.; Vilatela, J.; MARCILLA, R. Macroscopic Fibres of CNTs as Electrodes for Multifunctional Electric Double Layer Capacitors: From Quantum Capacitance to Device Performance. Nanoscale 2016, 8, 3620–3628. | 10.1039/C5NR07697H |  |
|  | A | Hou, G.; Wang, G.; Deng, Y.; Zhang, J.; Nshimiyimana, J. P.; Chi, X.; Hu, X.; Chu, W.; Dong, H.; Zhang, Z.; et al. Effective Enhancement of the Mechanical Properties of Macroscopic Single-Walled Carbon Nanotube Fibers by Pressure Treatment. RSC Adv. 2016, 6, 97012–97017. | 10.1039/C6RA21238G | batch growth of swnt film over 6 hrs. not comparable. batch growth of SWNT films but uses ferrocene, elemental sulphur, argon and methane |
| **2017** | C | Bulmer, J. S.; Gspann, T. S.; Barnard, J. S.; Elliott, J. A. Chirality-Independent Characteristic Crystal Length in Carbon Nanotube Textiles Measured by Raman Spectroscopy. Carbon N. Y. 2017. | 10.1016/j.carbon.2017.01.044 |  |
|  |  | Hossain, M. M.; Islam, M. A.; Shima, H.; Hasan, M.; Lee, M. Alignment of Carbon Nanotubes in Carbon Nanotube Fibers Through Nanoparticles: A Route for Controlling Mechanical and Electrical Properties. ACS Appl. Mater. Interfaces 2017, acsami.6b12869. | 10.1021/acsami.6b12869 |  |