

REFERENCES

- 1 Adanur S, Handbook of Industrial Textiles, Wellington Sears, Techonomic publishing Co. Inc, 1995
- 2 Allameh H. et al., Tensile strength of notched woven fabric hybrid glass carbon/epoxy composite laminates, Journal of Industrial Textiles, 2014, 43: 383
- 3 Hochard C, Payan J and Bordreuil C, A progressive first ply failure model for woven ply CFRP laminates under static and fatigue loads, International Journal of Fatigue, October 2006,28,1270-1276
- 4 Shembekar P and Naik K, Notched strength of fabric laminates. II: Effect of stacking sequence, Compos Sci Technol, 1992; 44(1): 13–20
- 5 Rajanish et al., Influence of Nano-Modification on the Interlaminar Shear Strength of Unidirectional Glass Fibre Reinforced Epoxy Resin, Journal of Minerals and Materials Characterization and Engineering, 2014
- 6 Loix et al., Science and Technology, Woven fabric permeability: From textile deformation to fluid flow mesoscale simulations, Composites Science and Technology 68, 2008,1624–1630
- 7 Sevkat et al., Drop-weight impact of plain-woven hybrid glass graphite/toughened epoxy composites, Composites: Part A 40, Elsevier ,2009, 1090–1110
- 8 Karahan et al., Influence of weaving structure and hybridization on the tensile properties of woven carbon-epoxy composites, Journal of Reinforced Plastics and Composites, 2014, Vol 33(2), 212–222
- 9 Saiman et al., 2014, The Effect of Fabric Weave on Tensile Strength of Woven Kenaf Reinforced Unsaturated Polyester Composite, International Colloquium on Textile Engineering, Fashion, Apparel and Design.

- 10 <http://compositeslab.com/composites-101/history-of-composites/> as assessed on 21/01/2018
- 11 Raymond, Composite materials and their integration in bridges, Thesis, Universität Polytechnic de Valencia, Valencia, 2018
- 12 Kaw, Mechanics of composite material, second edition, Taylor and Francis, London, 2006
- 13 <https://www.mar-bal.com/language/en/applications/history-of-composites/> as assessed on 21/12/2018
- 14 https://en.wikipedia.org/wiki/Composite_material#History as assessed on 21/01/2019
- 15 https://en.wikipedia.org/wiki/Owens_Corning as assessed on 22/01/2019
- 16 <https://www.wipo.int/ipadvantage/en/details.jsp?id=2909> as assessed on 22/01/2019
- 17 http://www.dupont.com/content/dam/dupont/products-and-services/fabrics-fibers-and-nonwovens/fibers/documents/Kevlar_Technical_Guide.pdf as assessed on 21/01/2019
- 18 <https://www.lucintel.com/india-composite-textiles-market-2013-2018.aspx> Lucintel – Global Management Consulting & Market Research Firm
- 19 Reuters: <https://www.reuters.com/brandfeatures/venture-capital/article?id=114988>
- 20 <http://icerpshow.com/>

International Conference and Exhibition on Reinforced Plastics (ICERP), Mumbai, 10th to 12th January 2019.

- 21 Marketsandmarkets:

<https://www.marketsandmarkets.com/PressReleases/textile-composites.asp>
- 22 http://www.torayca.com/en/aboutus/abo_002.html assessed on 26/10/18
- 23 Jones, Mechanics of composite material, second edition, Taylor and Francis, London,1999
- 24 Encyclopedia of Polymer Science and Technology, John Wiley & Sons, Composite materials, Vol 9, pp 282
- 25 Bannister M.K, Development and application of advanced textile composites, Proc. Instn Mech. Engrs, Part L: J. Materials: Design and Applications,2004, Vol. 218, 253-260
- 26 Ahmad Z., Faleh A and Aleem A, Corrosion Behavior of Carbon Reinforced Plain-Weave Laminates, Journal of Reinforced Plastics and Composites, 2004, 23: 1041, DOI: 10.1177/0731684404035268
- 27 Bhattacharya S and Agrawal S, Textile reinforced structure: A Review, Int. Journal of Engineering Research and Application, July 2017, Vol 7, 7, 84-86
- 28 Padaki V, Alagirusamy R & Deopura B, Low velocity impact behaviour of textile reinforced composites, Indian Journal of Fibre & Textile Research, 2008, Vol. 33, 189-202
- 29 Hearle J, Text Horizons, 1994, 14(6),12
- 30 Lamontia et al., Performance of a Filament Wound Graphite/Thermoplastic Composite Ring-Stiffened Pressure Hull Model, Journal of Thermoplastic Composite Materials, 1995, 8:15–36.

- 31 Kanitkar et al., Investigation of Flexural Properties of Glass-Kevlar Hybrid Composite, *European Journal of Engineering Research and Science*, July 2016, Vol. 1,1
- 32 Varshney et al., Innovations in Textile Composite Designing and Their Applications, *International Journal of Computer Applications* (0975 – 8887), 2015, 1-3
- 33 Gupta V and Kothari V, *Manufactured fibre technology*, Springer, Chapman & Hall, 1997
- 34 Feng et al., Carbon Nano-fibres and Their Composites: A Review of Synthesizing, Properties and Applications, *Materials* 2014, 7, 3919-3945; Doi:10.3390/Ma7053919
- 35 Xiang et al., Graphene nanoribbons as an advanced precursor for making carbon fibre, *ACS Nano* 2013, 7, 1628–1637.
- 36 Huang X, Fabrication and properties of carbon fibres, *Materials*, 2009, 2, 2369-2403; doi:10.3390/ma2042369
- 37 Lu W et al., State of the art of carbon nanotube fibres: Opportunities and challenges. *Adv. Mater.* 2012, 24, 1805–1833.
- 38 Chand S, Review carbon fibres for composites. *J. Mater. Sci.* 2000, 35, 1303–1313.
- 39 Wang Z, Jie L and Gang W, Evolution of structure and properties of PAN precursors during their conversion to carbon fibres, *Carbon*, 2003, 41, 2805–2812.
- 40 Huang X, Fabrication and properties of carbon fibres, *Materials*, 2009, 2, 2369-2403; doi:10.3390/ma2042369
- 41 Christian S et al., *Handbook of Benzoxazine Resins*, Chapter 35, Elsevier, 2011, ISBN 978-0-444-53790-4. <https://doi.org/10.1016/C2010-0-66598-9>

- 42 <https://www.slideshare.net/Farhanullahbaig/carbon-fibre-70688047>
assessed on 12/03/2019
- 43 <http://www.craftechind.com/the-rise-of-carbon-fibre-reinforced-plastics/> assessed on 22/01/2018
- 44 Palucka T and Bernadette B, Composites Overview, History of Recent Science & Technology, 19 October 2002
- 45 https://en.wikipedia.org/wiki/Carbon_fibres assessed on 23/05/2018
- 46 Algahtani A, Manufacturing of High Strength Kevlar Fibres, Journal of King Kalid University - Science. 2, 2006
- 47 Yeung H and Rao K, Mechanical Properties of Kevlar-49 Fibre Reinforced Thermoplastic Composites, Polymers & Polymer Composites, Vol. 20, No. 5, 2012
- 48 Du Pont, 2016. Kevlar® Technical Guide. Richmond, VA, United States of America: Du Pont. <https://www.dupont.com/products-and-services/fabrics-fibers-nonwovens/fibers/articles/kevlar-properties.html> assessed on 30/04/2019
- 49 Mishra, Fibre structure, Woodhead publishing limited, India, CRC press,2016.
- 50 https://en.wikipedia.org/wiki/High-density_polyethylene assessed on 23/05/18
- 51 <http://www.intexa.com/downloads/hightemp.pdf> assessed on 16/08/18
- 52 Horrocks et al., Handbook of technical textiles, Woodhead publishing limited, England,2000
- 53 Sudarshan et al., Strength Characteristics of HDPE Concrete,2015, IJRET, Vol.4,13, 340-346.

- 54 Zoghi, The International Handbook of FRP Composites in Civil Engineering, 2013, CRC press.
- 55 Vicario, Design and Applications, Comprehensive Composite Materials, 2000
- 56 Boisse P, Composite Reinforcements for Optimum Performance, Woodhead publishing ,UK, 2011
- 57 ‘The International Union of Pure and Applied Chemistry’
<https://iupac.org/> assessed on 26/09/18
- 58 <https://www.materialstoday.com/composite-processing/features/thermosetting-resins-an-introduction/> assessed on 28/09/18
- 59 Khalil et al., The Effect of Different Laminations on Mechanical and Physical Properties, Journal of reinforced plastics and composites, 2009, 28(9),1123-1137. <http://dx.doi.org/10.1177/0731684407087755>
- 60 <https://netcomposites.com/guide-tools/guide/resin-systems/epoxy-resins/> assessed on 25/09/18
- 61 <https://en.wikipedia.org/wiki/Thermoplastic> assessed on 26/10/18
- 62 Vasiliev et al., Advanced Mechanics of Composite Materials (Second Edition), 2007, Elsevier
- 63 Tuttle, Structural Analysis of Polymeric Composite Materials, 2003, CRC press
- 64 Nermin, A review on utilization of textile composites in transportation towards sustainability, IOP Conf. Series: Materials Science and Engineering, 2017 doi:10.1088/1757-899X/254/4/042002

- 65 Murugana et al., Investigation on Static and Dynamic Mechanical Properties of Epoxy Based Woven Fabric Glass/Carbon Hybrid Composite Laminates, 2014, Elsevier, ScienceDirect, Procedia Engineering 97, 459 – 468
- 66 Campbell C, Introduction to Composite Material. Structural Composite Materials, 2010, 1, 1-29.
- 67 Rana et al., Fibrous and Textile Materials for Composite Applications, Textile Science and Clothing Technology, 2016, Springer Science, Business Media Singapore. DOI 10.1007/978-981-10-0234-2_2
- 68 Marwa et al., Impact performance of hybrid laminated composites with statistical analysis, Iranian Polymer Journal, 2018, 27, 445–459.
<https://doi.org/10.1007/s13726-018-0622-9>
- 69 Acikbas G and Ozcan S, Production and characterization of a hybrid polymer matrix composite. Polym Compos, 2017
<https://doi.org/10.1002/pc.24471>
- 70 Fernando et al., Fatigue behavior of hybrid composites - Part 1 Carbon/Kevlar hybrids, J Mater Sci, 1988; 23(10), 3732–3743.
- 71 Allameh et al., Tensile strength of notched woven fabric hybrid glass, carbon/epoxy composite laminates, Journal of Industrial Textiles, 2014, 43: 383
- 72 Ozturk S., The effect of fibre content on the mechanical properties of hemp and basalt fibre reinforced phenol formaldehyde composites, Journal of material science, 2005, 40, 4585-4592
- 73 Czigany T., Special manufacturing and characteristics of basalt fibers reinforced hybrid polypropylene composites: mechanical properties and acoustic emission study, compos. sci and technology, 2006, 66, 3210-3220

- 74 Farsani et al., Influence of Thermal conditions on the tensile properties of basalt fiber reinforced polypropylene-clay nano-composites, *Material and design*, 2014,53,540-549
- 75 Nosraty et al., Intraply hybrid composites based on basalt and nylon woven fabrics: Tensile and compressive properties, *Iranian Journal of Materials Science & Engineering*, March 2015, Vol.12, No. 1
- 76 Thomas S, Kalaprasad G and Joseph K, Influence of short glass fiber addition on the mechanical properties of sisal reinforced low density polyethylene composites, *J Compos Mater*, 1997, 31:509–527
- 77 Thomas S, John M, Varughese K, Green composites from natural fibers and natural rubber: effect of fibre ratio on mechanical and swelling characteristics. *J Nat Fiber*, 2008,5:47–60
- 78 Pegoretti et al., Intraply and interply hybrid composites based on E-glass and poly (vinyl alcohol) woven fabrics: tensile and impact properties, *PolymInt*,2004,53,1290–1297
- 79 Hegde et al., Tensile properties of unidirectional glass/epoxy composites at different orientations of fibres, *Int. Journal of Engineering Research and Applications*, March 2015, Vol 5, 3, (Part - 1), 50-153
- 80 Long A et al., Characterizing the processing and performance of aligned reinforcements during preform manufacture. *Composites Part A*,1996,27, 247–53.
- 81 Harding et al., A simple laminate theory approach to the prediction of the tensile impact strength of woven hybrid composites, *Composites*, 1990, 21,439–47.
- 82 Ahmed et al., Elastic property evaluation of jute-glass fibre hybrid composite using experimental and CLT approach. *Indian J Engg Mater Sci*, 2006, 13, 435–42.

- 83 Zhang Z and Richardson M, Low velocity impact induced damage evaluation and its effect on the residual flexural properties of pultruded GRP composites, *Compos. Struct.*,2007, 81, 195–201.
- 84 Gao et al., Damage accumulation in woven-fabric CFRP laminates under tensile loading: Part 1. Observations of damage accumulation. *Compos Sci Technology*, 1999, 59(1): 123–136.
- 85 <http://www.engineershandbook.com/MfgMethods/handlayup.htm> assessed on 25/11/18
- 86 <http://nptel.ac.in/courses/101106038/mod02lec01.pdf> assessed on 25/11/18
- 87 https://www.fibreglast.com/product/composite-laminate-cutting/Learning_Center assessed on 25/12/18
- 88 Yee et al., A TGA technique for determining graphite fibre content in epoxy composites. *Thermochim. Acta*, 1996, 272,191–199.
- 89 Chen et al., Effect of fibre content on the interlaminar fracture toughness of unidirectional glass-fibre/polyamide composite. *Composites A*,1999 30,747–755.
- 90 Brunbauer et al., Effects of mean stress and fibre volume content on the fatigue-induced damage mechanisms in CFRP. *Int. J. Fatigue*,2015, 75:28–38.
- 91 Hong et al., Effect of Fibre Volume Fraction on the Flexural Properties of Unidirectional Carbon Fibre/Epoxy Composites, *International Journal of Polymer Analysis and Characterization*, 2015, Vol 20, 2, 180-189,

DOI: 10.1080/1023666X.2015.989076
- 92 Broyles et al., Fatigue performance of carbon fibre/vinyl ester composites: the effect of two dissimilar polymeric sizing agents, *polymer*, 1998, Vol.39. No. 15, 3417-3424.

- 93 Karahan M., The effect of fibre volume fraction on damage initiation and propagation of woven carbon-epoxy multi-layer composites, *Textile Research Journal*, 2011,82(1) 45–61. DOI: 10.1177/0040517511416282
- 94 Guru et al., Hybridization Effect on Flexural Properties of Epoxy Based Woven Carbon/Glass and Kevlar/Glass Composites. *Int. J. Curr. Res*, 2013.
- 95 Zhang et al., Hybrid Composite Laminates Reinforced with Glass/Carbon Woven Fabrics for Lightweight Load Bearing Structures, *Materials & Design*, 2012, 36, 75-80.
- 96 Chowdhury et al., Investigations on the thermal and flexural properties of plain weave carbon/epoxy-nano clay composites by hand-layup technique, *J Mater Sci*, 2007, 42, 2690–2700
- 97 Dong et al., Flexural Properties of S-2 Glass and TR30S Carbon Fibre-Reinforced Epoxy Hybrid Composites, *Polymer Composites*, 2012, 773-781
- 98 Deshmukh et al., Experimental Investigation and Prediction of Mechanical Properties of a Composite Material for Bone Plate Application, *International Journal of Science, Engineering and Technology Research*, 2015, Vol 4, 8
- 99 <https://www.ncbi.nlm.nih.gov/pubmed/21122907> assessed on 30/04/19
- 100 <http://www.prestogroup.com/blog/test-the-impact-strength-of-plastic-with-charpy-test/> assessed on 28/04/19
- 101 Richardson M and Wisheart M, Review of low-velocity impact properties of composite materials, *Composites Part A*,1996, 27A, 1123–31.

- 102 Bibo G and Hogg P, Review - The role of reinforcement architecture on impact damage mechanisms & post-impact compression behaviour, *J. Mater. Sci.*,1996, 31, 1115–37.
- 103 Abrate S, Impact on laminated Composite Materials, *Appl. Mech. Rev.*,1991, 44 (4),155–189.
- 104 Cantwell W and Morton J, The impact resistance of composite materials - A review, *Composites Part A*,1991, 22, 347–62.
- 105 Naik et al., Damage in woven-fabric composites subjected to low-velocity impact, *Compos. Sci. Technol.*, 2000, 60, 731-744.
- 106 Russo et al., Low velocity impact damage in composite laminates based on waste polyolefins, *International Symposium on Dynamic Response and Failure of Composite Materials*, 2014,165 – 172
- 107 Reddy et al., Response of E-glass/epoxy and Dyneema composite laminates subjected to low and high velocity impact, *International Symposium on Dynamic Response and Failure of Composite Materials*, 2017, 278-285
- 108 Raghunath et al., Low velocity impact analysis on glass fibre reinforced composites with varied volume fractions, *International conference on materials science and technology (ICMST 2012)*, 2015, 1-9
- 109 Vasile C, The mechanical response of textile composite materials to dynamic impact test, *Computational mechanics and virtual engineering*, 5th international conference COMEC 2013, 2013,324-329
- 110 Ramin and M Larry (2010), Damage behaviour of fibre reinforced composites plate subjected to drop weight impacts, *Journal of Composite Science and Technology*, 2010, 66, 61-68

- 111 Yapici A and Mehmet M, Effect of Low velocity Impact Damage on the Buckling Properties, Journal of Scientific Research, 2009, 161-166
- 112 Mitrevski et al., The effects of impactor shape on the impact response of Composite Laminate, Journal of Composite structures, 2005, Vol. 67, 139-148
- 113 Mathivan N and Jerald J, Experimental Investigation of low velocity impact Characteristics of woven glass fibre epoxy matrix composite laminate, Journal of materials and design, 2010, Vol 31, 4553-4560.
- 114 Kang et al., 1997, Mechanical and impact properties of composite laminates reinforced with Kevlar multiaxial warp knit fabrics.
- 115 Nogueira et al., Effect of the interfacial adhesion on the tensile and impact properties of carbon fibre reinforced polypropylene matrices, Mat. Res., 2005, Vol.8, 1
- 116 Toth L., Historical Background and Development of the Charpy Test, Proceedings of Charpy Centenary Conference, 2001, France, 3–17
- 117 <https://www.hardiepolymers.com/knowledge/do-izod-and-charpy-make-the-appropriate-impact/> assessed on 12/02/19
- 118 <http://www.matweb.com/reference/izod-impact.aspx> assessed on 13/02/19
- 119 <http://www.differencebetween.net/science/difference-between-izod-and-charpy-methods>) assessed on 14/02/19
- 120 Evan and Wilshaw, Quasi-static solid particle damage in Brittle solids-I. Observations, analysis and implications, Asia metallurgical, 1976, Vol. 24, 939-960.
- 121 Vanlandingham et al., Viscoelastic Characterization of Polymers Using Instrumented Indentation. I. Quasi-Static Testing, Journal of Polymer Science: Part B: Polymer Physics, 2005, Vol. 43, 1794–1811

- 122 Ebenstein and Wahl, A comparison of JKR-based methods to analyse quasi-static and dynamic indentation force curves, *Journal of Colloid and Interface Science*, 2006, 298, 652–662.
- 123 Afrouzian et al., Effect of nano-particles on the tensile, flexural and perforation properties of the glass/epoxy composites, *Journal of Reinforced Plastics and Composites*, 2017, Vol 0,0, 1–17. DOI: 10.1177/0731684417694753
- 124 Ruan et al., 2010, Quasi-static indentation tests on aluminium foam sandwich panels, *Composite Structures*, 2010, Vol 92, 9, 2039-2046.
- 125 Wagih et al., A quasi-static indentation test to elucidate the sequence of damage events in low velocity impacts on composite laminates, *Composites: Part A*, 2015

doi: <http://dx.doi.org/10.1016/j.compositesa.2015.11.041>
- 126 Antonucci et al., Strain monitoring of composite elements by fibre Bragg grating sensors during a quasi-static indentation, *Composites: Part B*, Elsevier, 2014, 56, 34–41.
- 127 Briggs et al., Quasi-Static Indentation Analysis of Carbon-Fiber Laminates, 2015, Sandia Report.

(<https://prod-ng.sandia.gov/techlib-noauth/access-control.cgi/2015/1510906.pdf>)
- 128 Nettles T and Douglas J, Comparison of Quasi-Static Indentation to Low-Velocity Impact, NASA, 2000.

<https://ntrs.nasa.gov/search.jsp?R=20000109864> 2019-07-15T07:28:10+00:00Z
- 129 Adam, Damage-resistance testing of composites, *Composites World*, 2016 <https://www.compositesworld.com/articles/damage-resistance-testing-of-composites>)

- 130 [https://en.wikipedia.org/wiki/ Scanning_electron_microscope](https://en.wikipedia.org/wiki/Scanning_electron_microscope)
assessed on 24/04/19
- 131 <https://science.howstuffworks.com/scanning-electron-microscope2.htm> assessed on 12/03/19
- 132 <https://www.slideshare.net/damarisb/sem-n-tem> assessed on 15/03/19
- 133 Azzam E, Compressive properties of stretch-broken carbon fibre (sbcf)/polyamide 12 commingled unidirectional composites, Autex Research Journal, 2007, Vol 7,3
<http://www.autexrj.org/No3-2007/0252.pdf> 166
- 134 Campilho G and Silva M, Fatigue and Fracture of Adhesively-Bonded Composite Joints, 2015, 93-120 (<https://doi.org/10.1016/B978-0-85709-806-1.00004-5>)
- 135 https://en.wikipedia.org/wiki/Composite_material assessed on 20/04/19
- 136 Barschke et al., Finite Element Modelling of Composite Materials using Kinematic Constraints, Ingenerate y Ciance, [S.l.], 2009, Vol 5, 10, 133-153.
- 137 Misra R, Dixit A and Mali H, Unit cell model of woven fabric textile composite for multiscale analysis, Malaysian International Tribology Conference, Procedia Engineering,2014,1877-7058
- 138 Dixit A and Mali H, Modelling techniques for predicting the mechanical properties of woven-fabric textile composites: A review. Mechanics of Composite,2013, Materials, 49, 1-20.
- 139 Cavallaro P, Sadegh A and Quigley C, Decrimping Behavior of Uncoated Plain-woven Fabrics Subjected to Combined Biaxial Tension and Shear Stresses. Textile Research Journal,2007, 77, 403-416.

- 140 Zouari J, Daniel L and Boisse P, A woven reinforcement forming simulation method influence of the shear stiffness. *Composite Structures*, 2006,84, 351–363
- 141 Lomov et al., *Modelling 3d Fabrics And 3d-Reinforced Composites, Challenge and Solutions*, 1st World Conference On 3d Fabrics Manchester 9, 2008
- 142 Kawabata, S., *The Development of the Objective Measurement of Fabric* Kyoto: The Textile Machinery of Japan, 1982, 31–59.
- 143 Bradaigh et al., *Development of rheological models for forming flows and picture frame shear testing of fabric forming processes*, *Composites science and technology*, 1997
- 144 Lomov S and Verpoest I, *Integrated models of textile composites*, *High Performance Structures and Composites*, 2000, ISBN 1-85312-904-6
- 145 Grosberg P and Park B, The mechanical properties of woven fabrics, V: The initial modulus and the frictional restraint in shearing of plain weave fabrics, *Textile Res J*, 1966, 420–31.
- 146 Lomov et al., *Textile Composites: Modelling Strategies*, *Composites Part A: Applied Science and Manufacturing*, 2001, 32, 1379–1394.
- 147 Kozhanov D, The features of finite-element modelling of a structural element of flexible woven composites, *St. Petersburg Polytechnical University Journal: Physics and Mathematics*, 2016, 2, 1–6
- 148 Andrei A, Nicolae Ț and Liliana B, Approaches in modelling the mechanical Characteristics of polymeric composites Reinforced with woven fabrics, *Bul. Inst. Polit. Iași*, t. LXI (LXV), f. 1, 2015, 57-68
- 149 Andrei A, Nicolae Ț and Liliana B, *Modelling the Geometrical Characteristics of Fabric Reinforced Composites*, *Intersections/Intersecții*, 2016, Vol. 13 (New Series), 95-103

- 150 Huang L, Determining Micro- and Macro-Geometry of Fabric and Fabric Reinforced Composites, Ph.D. Diss., Kansas state university Manhattan, Kansas 2013.
- 151 Kemp A, An Extension of Peirce's Cloth Geometry to the Treatment of Non-Circular Threads, J. of the Textile Inst. Transactions, 1958, 49, 1, T44-T48
- 152 Shanahan W and Hearle J, An Energy Method for Calculations in fabric Mechanics Part ii: Examples of Application of the Method to Woven Fabrics, J. of the Textile Institute, 1978, 69, 4, 92-100
- 153 Ning Q and Chou T, A General Analytical Model for Predicting the Transverse Effective Thermal Conductivities of Woven Fabric Composites, Composites Part A: Applied Science and Manufacturing (Incorporating Composites and Composites Manufacturing), 1998, 29, 3, 315-322
- 154 Searles K, Odegard G, and Kumosa M, Micro and Mesomechanics of 8-Harness Satin Woven Fabric Composites: I-Evaluation of Elastic Behavior, Composites Part A: Applied Science and Manufacturing, 2001, 32, 11, 1627-1655
- 155 Hofstee J and Keulen F, 3-D Geometric Modelling of a Draped Woven Fabric, Composite Structures, No. 54, 179-195 (2001).
- 156 Hashin Z., Rosen B.W, The Elastic Moduli of Fibre Reinforced Materials, J. of Applied Mechanics, 1964, 31, 223-232
- 157 Chamis C, Mechanics of Composite Materials: Past, Present and Future, J. of Composite Technology Research, 1989, 11, 3-14
- 158 Suquet P, Overall Potentials and Extremal Surfaces of Power Law or Ideally Plastic Composites, J. of the Mechanics and Physics of Solids, 1993, 41, 981-1002

- 159 Yeong M, Sang H and Sung K, Asymptotic Homogenization of Viscoelastic Composites with Periodic Microstructures, *Internat. J. of Solids and Structures*, 1998, 35,2039–2055
- 160 Tabiei A and Jiang Y, Woven Fabric Composite Material Model with Material Nonlinearity for Nonlinear Finite Element Simulation, *Internat. J. of Solids and Structures*, 1999, 36, 2757-2771
- 161 Tabiei A and Tanov R., Computationally Efficient Micromechanical Models for Woven Fabric Composite Elastic Moduli, *J. of Applied Mechanics*, 2001, Vol 68, 553
- 162 Tabiei A and Yi W, Comparative Study of Predictive Methods for Woven Fabric Composite Elastic Properties, *Composite Structures*, 2002, 58,149-164
- 163 Bogdanovich A, Multi-Scale Modelling, Stress and Failure Analyses of 3-D Woven Composites, *J. of Material Science*, 2006, 41, 6547-6590
- 164 Varadan T and Savithri S, Laminated plates under uniformly distributed and concentrated loads. *Journal of Applied Mechanics*,1992, 59, 1, 211–214
- 165 Donadon et al., A 3-d micromechanical model for predicting the elastic behaviour of woven laminates. *Composites Science and Technology*, 2007,3538, 67,11–12), 2467–2477
- 166 Rohwer K, Friedrichs S and Wehmeyer C, Analysing Laminated Structures from Fibre-Reinforced Composite Material–An Assessment, *Technische Mechanik*, 2005, 25, 59–79
- 167 Sidhu et al., Finite element analysis of textile composite preform stamping. *Composite Structures*, 2001,52 ,3–4, 483–497

- 168 Xiang et al., A material model for woven commingled glass-polypropylene composite fabrics using a hybrid finite element approach. *International Journal of Materials and Product Technology*, 2004,21,1-2-3, 59–70
- 169 Li et al., Finite element modelling and simulation for bending analysis of multi-layer printed circuit boards using woven fibre composite, *Journal of Materials Processing Technology*, 2008, 201,1–3, 746–750
- 170 Cao et al., Characterization of mechanical behaviour of woven fabrics: Experimental methods and benchmark results, *Composites. Part A, Applied science and manufacturing*, 2008, 39, 6, 1037–1053
- 171 Ryou H, Kwansoo C and Woong R, Constitutive modelling of woven composites considering asymmetric/anisotropic, rate dependent, and nonlinear behaviour, *Composites. Part A, Applied science and manufacturing*, 2007, 38, 12, 2500–2510
- 172 Djordjevic et al., Non-linear elastic behaviour of carbon fibres of different structural and mechanical characteristic. *Journal of the Serbian Chemical Society*, 2007, 72, 5, 513–521
- 173 Kim et al., Development of nonlinear constitutive laws for anisotropic and asymmetric fibre reinforced composites, *Polymer Composites*, 2008, 29,2, 216–228
- 174 Fitzer et al., Carbon fibres-present state and future expectation; Pitch and mesophase fibres; Structure and properties of carbon fibres, In *Carbon Fibres Filaments and Composites*, 1st ed.; Figueiredo et al, Springer: New York, NY, USA, 1989, 3–41, 43–72, 119–146.
- 175 Idicula et al., Effect of layering pattern on dynamic mechanical properties of randomly oriented short banana/sisal hybrid fiber-reinforced polyester composites. *J Appl Polym Sci*, 2005, 97:2168–2174

- 176 <https://amrita.olabs.edu.in/?brch=1&cnt=1&sim=72&sub=1>
assessed on 24/04/19
- 177 <https://www.aplustopper.com/understanding-buoyancy-using-archimedes-principle/> assessed on 24/04/19
- 178 Karahan M., The effect of fibre volume fraction on damage initiation and propagation of woven carbon-epoxy multi-layer composites, Textile research journal, 2011, 82, I, 45-61
- 179 Masters J and Portanova M, Standard Test Methods for Textile Composites, NASA Contractor Report 4751, September 1996. (<https://ntrs.nasa.gov/search.jsp?R=19960054333>)
- 180 D 3039/D 3039M, Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials.
- 181 D 790 – 03, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- 182 D 256 – 04, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
- 183 Ahmed et al., Effect of Unidirectional and Woven Fibres on Impact Properties of Epoxy Research Journal of Applied Sciences, Engineering and Technology, 2016, 12, 2, 197-205
- 184 Moon et al., Buckling of filament-wound composite cylinders subjected to hydrostatic pressure for underwater vehicle applications, Composite Structures, Elsevier, 2010, 92, 2241–2251
- 185 Wang et al., An experimental study of the effect of ply orientation on ballistic impact performance of multi-ply fabric panels, Textile Research Journal, 2016, Vol. 86, 1, 34–43. DOI: 10.1177/0040517514566110