

REFERENCES

- [1] D. Adams and M. Mobrem, *MARSIS Antenna Flight Deployment Anomaly and Resolution*. [Online]. Available: <https://arc.aiaa.org/doi/abs/10.2514/6.2006-1684>
- [2] S. Lomov, G. Huysmans, Y. Luo, R. Parnas, A. Prodromou, I. Verpoest, and F. Phelan, “Textile composites: modelling strategies,” *Composites Part A: Applied Science and Manufacturing*, vol. 32, no. 10, pp. 1379–1394, 2001. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S1359835X01000380>
- [3] Soykasap, “Analysis of tape spring hinges,” *International Journal of Mechanical Sciences - INT J MECH SCI*, vol. 49, pp. 853–860, 09 2007.
- [4] H. Mallikarachchi, “Predicting mechanical properties of thin woven carbon fiber reinforced laminates,” *Thin-Walled Structures*, vol. 135, pp. 297–305, 2019. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0263823118308887>
- [5] A. Sharma, T. Rose, A. Seamone, T. Murphey, and F. Lopez Jimenez, “Analysis of the column bending test for large curvature bending of high strain composites,” 01 2019.
- [6] E. Gamage, U. Weerasinghe, H. Wijesooriya, S. Herath, and C. Mallikarachchi, “Non-linear bending response of ultra-thin woven fibre composites at large curvatures,” *International Journal of Mechanical Sciences*, 2024 under review.
- [7] R. Jones, *Mechanics of Composite Materials*, ser. International student edition. Scripta Book Company, 1975. [Online]. Available: <https://books.google.com/books?id=lzXT3ANLrBgC>
- [8] S. Herath, M. Jayasekara, and C. Mallikarachchi, “Parametric study on the homogenized response of woven carbon fibre composites,” 07 2020.
- [9] M. Smith, *ABAQUS/Standard User’s Manual, Version 6.9*. United States: Dassault Systèmes Simulia Corp, 2009.

- [10] A. García-Carpintero, B. van den Beuken, S. Haldar, M. Herráez, C. González, and C. Lopes, “Fracture behaviour of triaxial braided composites and its simulation using a multi-material shell modelling approach,” *Engineering Fracture Mechanics*, vol. 188, pp. 268–286, 2018. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0013794417302576>
- [11] Mojtaba Komeili, “Mechanical behaviour of woven fabric composites under meso level uncertainties : Modeling and sensitivity analysis,” no. August, 2010.
- [12] M. Sakovsky, S. Pellegrino, and H. Mallikarachchi, *Folding and Deployment of Closed Cross-Section Dual-Matrix Composite Booms*. [Online]. Available: <https://arc.aiaa.org/doi/abs/10.2514/6.2016-0970>
- [13] D. M. S. P. Dassanayake, S. Navaratnarajah, and C. Mallikarachchi, “Quasi-static deployment simulation of a kapton polyimide creased unit,” in *2022 Moratuwa Engineering Research Conference (MERCon)*, 2022, pp. 1–6.
- [14] C. Mallikarachchi and S. Pellegrino, “Deployment dynamics of ultrathin composite booms with tape-spring hinges,” *Journal of Spacecraft and Rockets*, vol. 51, 02 2014.
- [15] J. Block, M. Straubel, and M. Wiedemann, “Ultralight deployable booms for solar sails and other large gossamer structures in space,” vol. 68, 04 2011.
- [16] C. Leclerc and S. Pellegrino, “Nonlinear elastic buckling of ultra-thin coilable booms,” *International Journal of Solids and Structures*, vol. 203, 07 2020.
- [17] G. Sanford, A. Biskner, and T. Murphey, “Large strain behavior of thin unidirectional composite flexures,” in *51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 2010.
- [18] J. M. Fernandez and T. W. Murphey, *A Simple Test Method for Large Deformation Bending of Thin High Strain Composite Flexures*. [Online]. Available: <https://arc.aiaa.org/doi/abs/10.2514/6.2018-0942>
- [19] C. Bris and T. Lelièvre, “Multiscale modelling of complex fluids: A mathematical initiation,” *Lecture Notes in Computational Science and Engineering*, vol. 66, 01 2009.

- [20] W. R. Smith and G. B. Wilkes, "Thermal conductivity of carbon blacks," *Industrial & Engineering Chemistry*, vol. 36, no. 12, pp. 1111–1112, 1944. [Online]. Available: <https://doi.org/10.1021/ie50420a007>
- [21] T. Gu, J. R. Medy, V. Fabien, O. Castelnau, S. Forest, E. Hervé-Luanco, F. Lecouturier-Dupouy, H. Proudhon, P.-O. Renault, and L. Thilly, "Multiscale modeling of the anisotropic electrical conductivity of architected and nanostructured cu-nb composite wires and experimental comparison," *Acta Materialia*, vol. 141, 09 2017.
- [22] K. S. Campbell, B. S. Chrisman, and S. G. Campbell, "Multiscale modeling of cardiovascular function predicts that the end-systolic pressure volume relationship can be targeted via multiple therapeutic strategies," *Frontiers in Physiology*, vol. 11, 2020. [Online]. Available: <https://www.frontiersin.org/articles/10.3389/fphys.2020.01043>
- [23] T. Ishikawa and T.-W. Chou, "Elastic behavior of woven hybrid composites," *Journal of Composite Materials*, Jul. 2016.
- [24] S. Song, A. M. Waas, K. W. Shahwan, O. Faruque, and X. Xiao, "Compression response of 2d braided textile composites: Single cell and multiple cell micromechanics based strength predictions," *Journal of Composite Materials*, vol. 42, no. 23, pp. 2461–2482, 2008. [Online]. Available: <https://doi.org/10.1177/0021998308096500>
- [25] K.-H. Tsai, C.-L. Hwan, W.-L. Chen, and C.-H. Chiu, "A parallelogram spring model for predicting the effective elastic properties of 2d braided composites," *Composite Structures*, vol. 83, no. 3, pp. 273–283, 2008. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0263822307001250>
- [26] D. Goyal, X. Tang, J. D. Whitcomb, and A. D. Kelkar, "Effect of various parameters on effective engineering properties of 2×2 braided composites," *Mechanics of Advanced Materials and Structures*, vol. 12, no. 2, pp. 113–128, 2005.
- [27] R. Karkkainen and B. Sankar, "A direct micromechanics method for analysis of failure initiation of plain weave textile composites," *Composites Science and Technology*, vol. 66, pp. 137–150, 01 2006.

- [28] X. Ji, A. M. Khatri, E. S. Chia, R. K. Cha, B. T. Yeo, S. C. Joshi, and Z. Chen, “Multi-scale simulation and finite-element-assisted computation of elastic properties of braided textile reinforced composites,” *Journal of Composite Materials*, vol. 48, no. 8, pp. 931–949, 2014. [Online]. Available: <https://doi.org/10.1177/0021998313480198>
- [29] B. David and H. Patrice, “Stiffness and failure modelling of 2d and 3d textile-reinforced composites by means of imbricate-type elements approaches,” *Computers Structures - COMPUT STRUCT*, vol. 80, pp. 2253–2264, 11 2002.
- [30] P. Tan, L. Tong, and G. P. Steven, “Modeling approaches for 3d orthogonal woven composites,” *Journal of Reinforced Plastics and Composites*, vol. 17, no. 6, pp. 545–577, 1998. [Online]. Available: <https://doi.org/10.1177/073168449801700605>
- [31] A. Tabiei and Y. Jiang, “Woven fabric composite material model with material nonlinearity for nonlinear finite element simulation,” *International Journal of Solids and Structures*, vol. 36, no. 18, pp. 2757–2771, 1999. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0020768398001279>
- [32] A. Gasser, P. Boisse, and S. Hanklar, “Mechanical behaviour of dry fabric reinforcements. 3d simulations versus biaxial tests,” *Computational Materials Science*, vol. 17, no. 1, pp. 7–20, 2000. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0927025699000865>
- [33] G. Hivet, E. Vidal-Sallé, and P. Boisse, “Analysis of the stress components in a textile composite reinforcement,” *Journal of Composite Materials*, vol. 47, no. 3, pp. 269–285, 2013. [Online]. Available: <https://doi.org/10.1177/0021998312439222>
- [34] D. Ballhause, M. König, and B. Kröplin, “Modelling of woven fabrics with the discrete element method,” *Cmc-computers Materials & Continua*, vol. 4, pp. 507–507, 2006. [Online]. Available: <https://api.semanticscholar.org/CorpusID:134201070>
- [35] G. Hivet and P. Boisse, “Consistent mesoscopic mechanical behaviour model for woven composite reinforcements in biaxial tension,” *Composites Part*

- B: Engineering*, vol. 39, no. 2, pp. 345–361, 2008. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S1359836807000297>
- [36] R. L. Karkkainen and B. V. Sankar, “A direct micromechanics method for analysis of failure initiation of plain weave textile composites,” *Composites Science and Technology*, vol. 66, no. 1, pp. 137–150, 2006. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0266353805001910>
- [37] A. Kueh and S. Pellegrino, “Triaxial weave fabric composites,” 01 2007.
- [38] H. S. Wijesuriya, “Predicting non-linear bending behaviour of ultra-thin woven fibre composites,” Ph.D. dissertation, 2019.
- [39] S. Green, A. Long, B. El Said, and S. Hallett, “Numerical modelling of 3d woven preform deformations,” *Composite Structures*, vol. 108, pp. 747–756, 2014. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S026382231300528X>
- [40] R. A. Naik, P. G. Ifju, and J. E. Masters, “Effect of fiber architecture parameters on deformation fields and elastic moduli of 2-d braided composites,” *Journal of Composite Materials*, vol. 28, pp. 656 – 681, 1994. [Online]. Available: <https://api.semanticscholar.org/CorpusID:135635636>
- [41] S. Lomov, *WiseTex—A Virtual Textile Composites Software*. Cham: Springer International Publishing, 2022, pp. 293–318. [Online]. Available: https://doi.org/10.1007/978-3-030-91515-5_7
- [42] L. Brown and A. Long, “8 - modeling the geometry of textile reinforcements for composites: Texgen,” in *Composite Reinforcements for Optimum Performance (Second Edition)*, second edition ed., ser. Woodhead Publishing Series in Composites Science and Engineering, P. Boisse, Ed. Woodhead Publishing, 2021, pp. 237–265. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/B9780128190050000083>
- [43] N. Gowrikanthan, M. Jayasekara, C. Mallikarachchi, and S. Herath, “Effects of tow arrangements on the homogenized response of carbon fiber woven composites,” *Composite Structures*, vol. 300, p. 116081,

2022. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0263822322008200>
- [44] L. Brown, mike matveev, and georgespachman, “louisepb/texgen: Texgen v3.13.0,” Jul. 2023. [Online]. Available: <https://doi.org/10.5281/zenodo.8189683>
- [45] S. Herath, M. Jayasekara, and C. Mallikarachchi, “Parametric study on the homogenized response of woven carbon fibre composites,” in *2020 Moratuwa Engineering Research Conference (MERCon)*, 2020, pp. 36–41.
- [46] S. Song, A. M. Waas, K. W. Shahwan, O. Faruque, and X. Xiao, “Compression response of 2d braided textile composites: Single cell and multiple cell micromechanics based strength predictions,” *Journal of Composite Materials*, vol. 42, no. 23, pp. 2461–2482, 2008. [Online]. Available: <https://doi.org/10.1177/0021998308096500>
- [47] J. Hughes, “Strength and modulus of current carbon fibres,” *Carbon*, vol. 24, no. 5, pp. 551–556, 1986, proceedings of the Conference on Strength and Structural in Carbons and Graphites. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/0008622386901442>
- [48] V. Keryvin, A. Marchandise, and J.-C. Grandidier, “Non-linear elastic longitudinal behaviour of continuous carbon fibres/epoxy matrix composite laminae: Material or geometrical feature?” *Composites Part B: Engineering*, vol. 247, p. 110329, 2022. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S1359836822007028>
- [49] G. Greaves, A. Greer, R. Lakes, and T. Rouxel, “Poisson’s ratio and modern materials,” *Nature materials*, vol. 10, p. 986, 11 2011.
- [50] T. W. Murphey, G. E. Sanford, and M. M. Grigoriev, “Nonlinear elastic constitutive modeling of large strains in thin carbon fiber composite flexures,” in *16th International conference on composite structures, Porto, Portugal*, 2011.