

7 REFERENCES

- [1] S. P. Singh, H. Singh, and P. Mahajan, “A generalized model for one-dimensional impact response of a heterogeneous layered medium,” *International Journal of Impact Engineering*, vol. 173, p. 104433, Mar. 2023, doi: 10.1016/j.ijimpeng.2022.104433.
- [2] Q. M. Li, S. R. Reid, H. M. Wen, and A. R. Telford, “Local impact effects of hard missiles on concrete targets,” *International Journal of Impact Engineering*, vol. 32, no. 1–4, pp. 224–284, Dec. 2005, doi: 10.1016/j.ijimpeng.2005.04.005.
- [3] S. Nikbakht, S. Kamarian, and M. Shakeri, “A review on optimization of composite structures Part II: Functionally graded materials,” *Composite Structures*, vol. 214, pp. 83–102, Apr. 2019, doi: 10.1016/j.compstruct.2019.01.105.
- [4] M. A. Meyers, *Dynamic behavior of materials*. New York: Wiley, 1994.
- [5] J. A. Zukas, *Introduction to hydrocodes*. in Studies in applied mechanics, no. 49. Amsterdam: Elsevier, 2004.
- [6] X. Chen, N. Chandra, and A. M. Rajendran, “Analytical solution to the plate impact problem of layered heterogeneous material systems,” *International Journal of Solids and Structures*, vol. 41, no. 16–17, pp. 4635–4659, Aug. 2004, doi: 10.1016/j.ijsolstr.2004.02.064.
- [7] V. Agrawal and K. Bhattacharya, “Shock wave propagation through a model one dimensional heterogeneous medium,” *International Journal of Solids and Structures*, vol. 51, no. 21–22, pp. 3604–3618, Oct. 2014, doi: 10.1016/j.ijsolstr.2014.06.021.
- [8] G. A. Gazonas, A. P. Velo, and R. A. Wildman, “Asymptotic impact behavior of Goupillaud-type layered elastic media,” *International Journal of Solids and Structures*, vol. 96, pp. 38–47, Oct. 2016, doi: 10.1016/j.ijsolstr.2016.06.024.
- [9] S. Astarlioglu and T. Krauthammer, “Response of normal-strength and ultra-high-performance fiber-reinforced concrete columns to idealized blast loads,” *Engineering Structures*, vol. 61, pp. 1–12, Mar. 2014, doi: 10.1016/j.engstruct.2014.01.015.
- [10] C. Zhang, G. Gholipour, and A. A. Mousavi, “Blast loads induced responses of RC structural members: State-of-the-art review,” *Composites Part B: Engineering*, vol. 195, p. 108066, Aug. 2020, doi: 10.1016/j.compositesb.2020.108066.
- [11] E. J. Conrath, Structural Engineering Institute, and American Society of Civil Engineers, Eds., *Structural design for physical security: state of the practice*. Reston, Va: SEI : ASCE, 1999.
- [12] A.-H. I. Mourad, A. H. Idrisi, N. Zaaroura, M. M. Sherif, and H. Fouad, “Damage assessment of nanofiller-reinforced woven kevlar KM2plus/Epoxy resin laminated composites,” *Polymer Testing*, vol. 86, p. 106501, Jun. 2020, doi: 10.1016/j.polymertesting.2020.106501.
- [13] M. A. Caminero, I. García-Moreno, and G. P. Rodríguez, “Damage resistance of carbon fibre reinforced epoxy laminates subjected to low velocity impact: Effects of laminate thickness and ply-stacking sequence,” *Polymer Testing*, vol. 63, pp. 530–541, Oct. 2017, doi: 10.1016/j.polymertesting.2017.09.016.
- [14] J. Leijten, H. E. N. Bersee, O. K. Bergsma, and A. Beukers, “Experimental study of the low-velocity impact behaviour of primary sandwich structures in aircraft,” *Composites Part A: Applied Science and Manufacturing*, vol. 40, no. 2, pp. 164–175, Feb. 2009, doi: 10.1016/j.compositesa.2008.10.019.
- [15] C. Fallon and G. J. McShane, “Impact damage protection mechanisms for elastomer-coated concrete,” *International Journal of Protective Structures*, vol. 12, no. 3, pp. 377–395, Sep. 2021, doi: 10.1177/2041419620984811.
- [16] A. M. Remennikov, S. Y. Kong, and B. Uy, “The response of axially restrained non-composite steel–concrete–steel sandwich panels due to large impact loading,” *Engineering Structures*, vol. 49, pp. 806–818, Apr. 2013, doi: 10.1016/j.engstruct.2012.11.014.
- [17] R. P. Bohara, S. Linforth, T. Nguyen, A. Ghazlan, and T. Ngo, “Anti-blast and -impact performances of auxetic structures: A review of structures, materials, methods, and fabrications,” *Engineering Structures*, vol. 276, p. 115377, Feb. 2023, doi: 10.1016/j.engstruct.2022.115377.
- [18] N. S. Ha and G. Lu, “A review of recent research on bio-inspired structures and materials for energy absorption applications,” *Composites Part B: Engineering*, vol. 181, p. 107496, Jan. 2020, doi: 10.1016/j.compositesb.2019.107496.
- [19] S. H. Siddique, P. J. Hazell, H. Wang, J. P. Escobedo, and A. A. H. Ameri, “Lessons from nature: 3D

- printed bio-inspired porous structures for impact energy absorption – A review,” *Additive Manufacturing*, vol. 58, p. 103051, Oct. 2022, doi: 10.1016/j.addma.2022.103051.
- [20] Z. Guoqi, W. Goldsmith, and Ck. H. Dharan, “Penetration of laminated Kevlar by projectiles—I. Experimental investigation,” *International Journal of Solids and Structures*, vol. 29, no. 4, pp. 399–420, 1992, doi: 10.1016/0020-7683(92)90207-A.
- [21] S. K. Roy, M. Trabia, B. O’Toole, and M. Pena, “Study of Hypervelocity Projectile Impact on Thick Metal Plates,” *Shock and Vibration*, vol. 2016, pp. 1–11, 2016, doi: 10.1155/2016/4313480.
- [22] F. J. Zerilli and R. W. Armstrong, “Dislocation-mechanics-based constitutive relations for material dynamics calculations,” *Journal of Applied Physics*, vol. 61, no. 5, pp. 1816–1825, Mar. 1987, doi: 10.1063/1.338024.
- [23] Y. Cao, H. S. Di, R. D. K. Misra, and J. Zhang, “Hot Deformation Behavior of Alloy 800H at Intermediate Temperatures: Constitutive Models and Microstructure Analysis,” *J. of Materi Eng and Perform*, vol. 23, no. 12, pp. 4298–4308, Dec. 2014, doi: 10.1007/s11665-014-1220-4.
- [24] V. Kumar, V. Yadav, U. Shankar, and G. Suneesh, “A review on Johnson Cook material model,” *Materials Today: Proceedings*, vol. 62, pp. 3450–3456, 2022, doi: 10.1016/j.matpr.2022.04.279.
- [25] H. Ramírez and C. Rubio-Gonzalez, “Finite-element simulation of wave propagation and dispersion in Hopkinson bar test,” *Materials & Design*, vol. 27, no. 1, pp. 36–44, Jan. 2006, doi: 10.1016/j.matdes.2004.08.021.
- [26] G. Sun, D. Chen, H. Wang, P. J. Hazell, and Q. Li, “High-velocity impact behaviour of aluminium honeycomb sandwich panels with different structural configurations,” *International Journal of Impact Engineering*, vol. 122, pp. 119–136, Dec. 2018, doi: 10.1016/j.ijimpeng.2018.08.007.
- [27] R. A. Gingold and J. J. Monaghan, “Smoothed particle hydrodynamics: theory and application to non-spherical stars,” *Monthly Notices of the Royal Astronomical Society*, vol. 181, no. 3, pp. 375–389, Dec. 1977, doi: 10.1093/mnras/181.3.375.
- [28] W. Yang, R. Ye, P. Ren, and A. Tian, “Antipenetration Performance of Multilayer Protective Structure by the Coupled SPH-FEM Numerical Method,” *Shock and Vibration*, vol. 2023, pp. 1–20, Jul. 2023, doi: 10.1155/2023/6225283.
- [29] P. L. N. Fernando, D. Mohotti, and A. Remennikov, “An Innovative Approach of Using Continuous Impedance-Graded Metallic Composite System for Attenuation of Stress Waves,” *Journal of Applied Mechanics*, vol. 86, no. 6, p. 061002, Jun. 2019, doi: 10.1115/1.4042681.
- [30] K. Guo, L. Zhu, Y. Li, and T. X. Yu, “Numerical study on mechanical behavior of foam core sandwich plates under repeated impact loadings,” *Composite Structures*, vol. 224, p. 111030, Sep. 2019, doi: 10.1016/j.compstruct.2019.111030.
- [31] L. W. Davison, *Fundamentals of shock wave propagation in solids*. in Shock wave and high pressure phenomena. Berlin: Springer, 2008.
- [32] J. K. Knowles, “On the relation between particle velocity and shock wave speed for thermoelastic materials,” *Shock Waves*, vol. 12, no. 2, pp. 137–144, Aug. 2002, doi: 10.1007/s00193-002-0146-1.
- [33] P. W. Cooper, *Explosives engineering*, 1st ed. Weinheim: Wiley-VCH, 2018.
- [34] M. Murugesan and D. Jung, “Johnson Cook Material and Failure Model Parameters Estimation of AISI-1045 Medium Carbon Steel for Metal Forming Applications,” *Materials*, vol. 12, no. 4, p. 609, Feb. 2019, doi: 10.3390/ma12040609.
- [35] E Kelderman, “Mechanical behaviour of armoured steel under high strain rate tensile loading conditions,” *The UNSW Canberra at ADFA Journal of Undergraduate Engineering Research*, 8(1). (2015).
- [36] A. E. Buzyurkin, I. L. Gladky, and E. I. Kraus, “Determination and verification of Johnson–Cook model parameters at high-speed deformation of titanium alloys,” *Aerospace Science and Technology*, vol. 45, pp. 121–127, Sep. 2015, doi: 10.1016/j.ast.2015.05.001.
- [37] A. Manes, M. Pagani, M. Saponara, D. Mombelli, C. Mapelli, and M. Giglio, “Metallographic characterisation of Al6061-T6 aluminium plates subjected to ballistic impact,” *Materials Science and Engineering: A*, vol. 608, pp. 207–220, Jul. 2014, doi: 10.1016/j.msea.2014.04.064.
- [38] Kasper and Vivian, “Modeling of armour-piercing projectile perforation of thick aluminium plates,” presented at the 13th International LS-DYNA Users Conference, 2014. [Online]. Available: <https://lsdyna.ansys.com/wp-content/uploads/attachments/modelling-of-armour-piercing-projectile-perforation-of-thick-aluminium-plates.pdf>
- [39] O. Heuzé, “Complete forms of Mie-Grüneisen equation of state,” presented at the SHOCK

COMPRESSION OF CONDENSED MATTER - 2015: Proceedings of the Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter, Tampa Bay, Florida, USA, 2017, p. 050001. doi: 10.1063/1.4971535.

- [40] P. L. N. Fernando, D. Mohotti, A. Remennikov, P. Hazell, H. Wang, and A. Amin, “Stress propagation and debonding effects in impedance-graded multi-metallic systems under impact loading,” *International Journal of Protective Structures*, vol. 12, no. 1, pp. 3–21, Mar. 2021, doi: 10.1177/2041419620917709.
- [41] S. P. Singh, H. Singh, and P. Mahajan, “Interaction of Shock Waves in a Multi-material System,” in *Recent Advances in Applied Mechanics*, T. Tadepalli and V. Narayanamurthy, Eds., in Lecture Notes in Mechanical Engineering. , Singapore: Springer Singapore, 2022, pp. 547–559. doi: 10.1007/978-981-16-9539-1_40.
- [42] P. J. Hazell, *Armour: materials, theory, and design*. Boca Raton, FL: CRC Press, 2016.
- [43] P. L. N. Fernando, D. Mohotti, A. Remennikov, P. J. Hazell, H. Wang, and A. Amin, “Experimental, numerical and analytical study on the shock wave propagation through impedance-graded multi-metallic systems,” *International Journal of Mechanical Sciences*, vol. 178, p. 105621, Jul. 2020, doi: 10.1016/j.ijmecsci.2020.105621.