

Prof. (Eng.) Paul M. Wambua, FIEK
P.O Box 7074 Eldoret 30100
email: paulwambua@yahoo.com
Google Scholar: Paul Wambua

Career summary

July 2013- July 2018	Dedan Kimathi University of Technology (DeKUT), Nyeri county Deputy Vice-Chancellor (Research, Technology Management and Community Linkages)
April 2013 - July 2013	Kirinyaga University College, Kirinyaga county Deputy Principal (Academic Affairs)
September 2012	Moi University, Eldoret Full Professor of Materials Engineering, Department of Manufacturing, Industrial and Textile Engineering, Moi University.
July 2012-tadate	Donghua University, China Visiting Professor, International Graduate Summer School, in July
January 2012	Kenya Polytechnic University College, Nairobi External Examiner
August 2011 – March 2013	Moi University, Eldoret Dean, School of Engineering, Moi University
May 2010	National University of Science and Technology, Bulawayo, Zimbabwe. External Examiner
January 2009	Moi University, Eldoret Associate Professor of Materials Engineering, Department of Manufacturing, Industrial and Textile Engineering.
September 2008 – July 2011	Moi University, Eldoret Head of Department, Department of Manufacturing, Industrial and Textile Engineering

March 2007– August 2008	South Africa, Port Elizabeth Postdoctoral fellow/Senior researcher, Council for Scientific and Industrial Research (CSIR), Materials Science and Manufacturing.
August 2004	Moi University, Eldoret Senior lecturer, Department of Manufacturing, Industrial and Textile Engineering,
August 1998 – August 1999	Moi University, Eldoret Acting Head, Department of Textile Engineering, Moi University.
February 1996	Moi University Lecturer, Department of Textile Engineering,
October 1995	Moi University, Eldoret Assistant Lecturer, Department of Textile Engineering,
October 1995	Moi University, Eldoret Time-Table and Examinations Co-ordinator, Department of Textile Engineering
April 1992	Moi University, Eldoret Graduate assistant, Department of Textile Engineering.
August 1989 – March 1992	Ministry of Industry, Nairobi Industrial Development Officer/Assistant Engineer

Education and Qualifications

- Doctor of Engineering (PhD)- Katholieke Universiteit Leuven, Belgium – 2004
- MSc Textile Science & Engineering – University of Leeds, UK – 1995
- BSc Textile Engineering – University of Engineering and Technology, Lahore, Pakistan – 1989
- “A” Levels – Lenana School – 1982
- “O” Levels – Kabete Technical School – 1980

Management Training

21st to 24th March, 2018	Governance and Strategic Management, Simba Lodge, Naivasha
25th to 29th January, 2016	Managing for results, North Coast Hotel, Mombasa
8th to 9th December, 2015	Supervisory and management skills training, Dedan

18th to 19th October, 2012	Kimathi University conservancy training centre. Finance for Non-Finance Managers and Directors, Hilton Hotel, Nairobi
24th to 26th May, 2011	Training of Trainers, Factory Evaluation and Performance audit workshop, Method Engineering and Productivity Improvement, Nairobi, Kenya
10th to 12th February, 2010	Corporate governance training course, facilitated by KIM International Centre for Leadership and Management Development and Africa Corporate Governance Advisory Services, Sarova Panafric Hotel, Nairobi.

Professional Membership

2019	Member, Eminent Engineers Forum
2018	Member, Institute of Directors of Kenya
2011	Fellow, The Institution of Engineers of Kenya
2009	Full Member, Kenya Institute of Management.
2001	Registered Professional Engineer, Engineers Board of Kenya.
2001	Member, Society for the Advancement of Materials and Process Engineering (SAMPE Europe).
1999	Chartered Member, The Textile Institute, Manchester, UK.

University Teaching Record

- Advanced composite materials and structures (PhD students)
- Materials recycling (PhD students)
- Composite Materials (undergraduate and postgraduate students)
- Mechanics (undergraduate)
- Manufacturing (undergraduate and postgraduate)
- Materials testing (undergraduate and postgraduate)

Research Interests

- Processing of polymer composite materials
- Mechanical testing of materials
- Natural fibre composites
- Low and ballistic velocity impact testing of materials
- Armour materials
- Explosive blast testing
- Fibre metal laminates

List of Academic Publications

(a) Published books:

- Engineering Polymeric composite materials: a tool to fast track Kenya's technological development, ISBN: 9966-854-87-8, 2013
- Protective low-price composite materials based on natural fibres, PhD Thesis, Katholieke Universiteit Leuven, Belgium, ISBN 90-5682-514-3, June 2004.

(b) Book Chapter

- James Njuguna, **Paul Wambua**, Krzysztof Pielichowski and Kambiz Kayvantash, Natural Fibre-Reinforced Polymer Composites and Nanocomposites for Automotive Applications, Cellulose Fibers: Bio- and Nano-Polymer Composites, Green Chemistry and Technology, Kalia, Susheel; Kaith, B. S.; Kaur, Inderjeet (Eds.) 1st Edition., 2011, pp 661-700, ISBN: 978-3-662-50610-3.

(c) Selected Publications

1. Obed Akampumuza, **Paul Wambua**, Azzam Ahmed, Wei Li, Xiao-Hong Qin, A review of the applications of bio composites in the automotive industry, Polymer Composites, Volume 38, Issue 11, November 2017, Pages 2553–2569.
2. Dennis O. Bichang'a, **Paul M. Wambua**, Eric N. Oyondi, Effect of Alkali Treatment on Mechanical Properties of Sisal Woven Fabric Reinforced Epoxy Composites, American Journal of Engineering Research, Volume-6, Issue-6, 2017, pp-93-96.
3. Rotich K. Gideon, Hangjun Hu, **Paul Wambua**, Bohong Gu, Characterizations of Basalt Unsaturated Polyester Laminates Under Static Three-Point Bending and Low-Velocity Impact Loadings, Polymer Composites, Vol. 35, Issue 11, Nov. 2014.
4. Moshibudi C Khoathane, Emmanuel R Sadiku, **Paul M Wambua**, Effect of Water Glass Treatment on The Mechanical and Thermooxidative Properties of Kenaf and Sisal Fibres, Journal of Reinforced Plastics and Composites, Volume 31 Issue 19, October 2012.
5. Edward O.V.Odhong, **Paul M. Wambua**, Abel N.Mayaka, Recycling and value addition to thermoplastic wastes to produce plant fibre reinforced composites, Journal of Macromolecules, Vol. 8, Issue 1, 2012, ISSN: 0974-7478.
6. **P.M. Wambua**, A.N. Mayaka and E.O.V. Odhong, Recycling and Fibre Reinforcement of Thermoplastic Wastes to Produce Composites for Construction Works, Research Journal of Applied Sciences, Engineering and Technology, Vol. 4(7) March 2012.
7. Peter Chemweno, Wilson O Ogola, **Paul Wambua**, John Githaiga, Sheila Odhiambo, Naftali Kiplagat, Patrick Nziu, Design of a Crop Residue Burner for Cereal Drying, Journal of Chemical Technology, Vol. 6, issue 4, 2011.
8. Nzila C., Dewulf J., Spanjers H., **Wambua P.**, et all, Colour and nutrient removal from textile waste water using an enhanced fluidised bed bioreactor, The African Journal of Technology, Vol. 1, issue 1, 2011 pp 65-79.

9. **P.M. Wambua** and Rajesh Anandjiwala, A Review of Preforms for the Composites Industry, *Journal of Industrial Textiles*, Volume 40, Issue 4, April 2011 pp. 310 – 333.
10. **Paul M. Wambua** and Rajesh Anandjiwala. Instrumented drop weight impact on cotton, cotton/flax and cotton/glass composites, *International Review of Mechanical Engineering* Vol. 5, No. 3, March 2011.
11. **Paul Wambua**, Rajesh Anandjiwala, Failure of natural fibre and hybrid composites under localised explosive blast, *International Review of Mechanical Engineering (IREME)*, Vol. 3. No. 4, 2009, ISSN 1970-8734.
12. **Paul Wambua**, James Njuguna, Kirimi Kiriamiti, Ochieng Aoyi and Charles Nzila. Industrialization and poverty eradication through manufacturing and application of composite materials. In proceedings, Institution of Engineers of Kenya International Conference, Nairobi 22nd to 24th April, 2009.
13. C. Nzila, **P. Wambua** et al. The Potential of Low Cost EPAD System in the Treatment of Textile Mill Effluents, *Kenya Journal of Mechanical Engineering*, 2008;4(1):1-14.
14. R. Anandjiwala, M. John, **P. Wambua**, S. Chapple, T. Klems, M. Doecker, M. Goulain and L. Erasmus, Bio-based structural composite materials for aerospace applications, in proceedings, 2nd SAIAS Symposium, 14-16 September 2008, Stellenbosch, South Africa.
15. **Paul Wambua**, Rajesh Anandjiwala, Genevieve Langdon and Gerald Nurick. Blast testing of natural fibre and hybrid composites, in proceedings, 29th International Conference SAMPE EUROPE, Hotel Mercure, Porte de Versailles “EXPO”, Paris, France, 31st March to 2nd April, 2008. ISBN 978-3-9522677-7-6.
16. K. Kiriamiti, S. Osembo, **P. Wambua**, A. Ochieng and S. Kiambi. Pulping Non-Wood Material Using Refinery Technology, Proceedings of the Conference on Collaborative Research for Technological Development, Kampala, Uganda, 17th to 21st December, 2007.
17. **P.M. Wambua**, Maya John and Rajesh Anandjiwala, Low velocity impact on cotton and hybrid composites, Proceedings of the Fibre Reinforced Composites Conference, Port Elizabeth, 9-12 Dec. 2007, ISBN 10: 0-620-37679-1 Fibre Reinforced Composites Conference 2007.
18. James Njuguna, **Paul Wambua**, Tim Jackson, Stefan Liesker, Sam Monoogian, Gerardo Salazar and Erik Schuivens, Side Impact Protection Systems for Racing Car using Energy Absorbing Sandwich Structures, Proceedings of the Fibre Reinforced Composites Conference, Port Elizabeth, 9-12 Dec. 2007, ISBN 10: 0-620-37679-1 Fibre Reinforced Composites Conference 2007.
19. **Paul Wambua**, Huxiang Hu, and Ignaas Verpoest, Impact response of hemp/polypropylene based composites, *Kenya Journal of Mechanical Engineering*, 2007;3(1):21-28.
20. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. The response of natural fibre composites subjected to ballistic impact by fragment simulating projectiles, *Composite Structures*, 2007;77(2):232-240.
21. **Paul Wambua**, Huxiang Hu, Ignaas Verpoest. Low velocity impact of hemp reinforced polypropylene composites. In proceedings, 27th International Conference SAMPE EUROPE, Hotel Mercure, Porte de Versailles “EXPO”, Paris, France, 27th to 29th March 2006.

22. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. Protection, against secondary fragmentation from AP mines based on natural fibre composites, *Journal of Mine Action* 9.1 August, 2005; p95-98.
23. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest, Impact on natural fibre-reinforced polypropylene composites: failure modes. In proceedings, The Textile Institute 83rd World Conference, Shanghai, China, 23rd – 27th May 2004; vol. 3:1065 -1068.
24. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. An anti-personnel mine protection based on natural fibres. In proceedings, The 4th International Symposium on Materials from Renewable Resources, MesseCongressCenter Erfurt, Germany, 11th - 12th September 2003, CD Paper No S1-14.
25. **Paul Wambua**, Jan Ivens and Ignaas Verpoest. Natural fibres: can they replace glass in fibre reinforced thermoplastics? *Composites Science and Technology*, 2003;63:1259-1264.
26. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. Mechanical behaviour and ballistic impact response of hemp and flax fabric polypropylene composites. Proceedings, 23rd Risø International Symposium on Materials Science: Sustainable natural and polymeric composites – science and technology, Risø National Laboratory, Roskilde, Denmark, 2-5 September 2002, p357-365.
27. **Paul Wambua** and Ignaas Verpoest. Hemp Fabric Reinforced Polypropylene Composites: An Investigation of the Mechanical Properties. In proceedings, 10th European Conference on Composite Materials (ECCM-10), Brugge, Belgium, June 3rd – 7th 2002, CD edition.
28. Ochieng A, Ogada T, Sisenda W, **Wambua P**. Brewery wastewater treatment in a fluidised bed bioreactor, *Journal of hazardous materials*: 90: (3) 2002, p311-321.
29. **Paul Wambua**, Jan Ivens and Ignaas Verpoest. Some mechanical properties of kenaf/polypropylene composites prepared using a film stacking technique. In proceedings, International Conference on Composite Materials (ICCM-13) Beijing, China, June 25-29 2001, CD-ROM paper ID 1125.
30. Huang YD, Liu YL, **Wambua P**. Formation of ultrafine scale structures in aluminium containing small amounts of particles by conventional rolling deformation, *Journal of materials science* 36: (19) 2001, p4711-4717.
31. **Wambua P M**. The effect of twist angle on the modulus in worsted and semi-worsted staple yarns, *Journal of agriculture, science and technology* 2: (1) 1999, p71-76.

Other articles (not peer reviewed)

32. **Wambua PM**. Composite materials: Can Kenya afford to lag behind? *Journal of the Institution of Engineers of Kenya*, May/June 2006 P28-9.
33. **Wambua PM**. Composite materials, *Student Technologist*, vol. 12, 2005:p4-5.

List of Conference Presentations

1. Silas Mbeche, **Paul Wambua** and David Njuguna, Mechanical Properties of Sisal/Cattail Fibre Reinforced Polyester Hybrid Composites, **2019 International Symposium on Advanced Textiles Science and Engineering**, Donghua

- University, Shanghai, China, 9th July, 2019, *an invited speaker*.
2. **Paul Wambua**, Evolution of Textile Education: Case of Moi University, 2018 Textile and Fashion Education World Conference (TFEWC 2018), Donghua University, Shanghai, China, 7th to 9th December, 2018, *an invited speaker*.
 3. **Paul Wambua**, Natural Fibre Composites: From low to high tech products, The 10th International Conference on Green Composites, Quanzhou Normal University, Quanzhou, China. 7th to 8th November, 2018. *This paper was an invited key note address*.
 4. **P. M. Wambua**, James Njuguna and Rajesh Anandjiwala, Energy absorption mechanisms of natural fibre composites, 20th Annual International Conference on Composites, Nano or Metals Engineering, (ICCE-20) July 22-28, 2012, Beijing, China.
 5. A. N. Mayaka, **P. M. Wambua**, O. V. E. Odhong, Recycling of Thermoplastic Wastes to produce Materials for Construction Works, Technology Convergence: -The Challenges, Risks and Opportunities, Multimedia University College of Kenya, 1st to 3rd December, 2011.
 6. **Wambua P. M.** and Brown K., Value addition of natural fibres through composites technology, East African cotton, textile and apparel (CTA) value chain conference in Africa to develop competitiveness, Mombasa 1st to 4th November, 2011.
 7. **Paul Wambua** and Rajesh Anandjiwala, Failure of Natural Fibre Composites Subjected to Impact, International Symposium on Sustainable Composites, Donghua University, Shanghai, China. 5th to 8th October, 2011. *This paper was an invited key note address*.
 8. A.N. Mayaka, **P. Wambua**, E.O.V. Odhong, Recycling and Value Addition to Thermoplastic Wastes to Produce Composites for Aircraft Interiors and Exteriors, Moi University 7th International Conference, Eldoret, 7th to 10th September, 2011.
 9. **Paul Wambua** and James Njuguna, Energy absorption mechanisms of natural fibre and hybrid composites subjected to drop weight impact, Moi University 6th International Conference, Eldoret, 7th to 10th September, 2010.
 10. Norbert Muya and **Paul Wambua**, Viability of natural fibre reinforced composites industry in Kenya, Moi University 6th International Conference, Eldoret, 7th to 10th September, 2010.
 11. Ruella Singh, Krishnie Moodley, **Paul Wambua**, Anil Kumar, Maurice S. Onyango, Aoyi Ochieng, Removal of cobalt using agricultural adsorbents, Moi University 6th International Conference, Eldoret, 7th to 10th September, 2010.
 12. **Paul Wambua**, James Njuguna, Kirimi Kiriamiti, Ochieng Aoyi and Charles Nzila. Industrialization and poverty eradication through manufacturing and application of composite materials. Institution of Engineers of Kenya International Conference, Nairobi 22nd to 24th April, 2009.
 13. **Paul Wambua**, Rajesh Anandjiwala, Genevieve Langdon and Gerald Nurick. Blast testing of natural fibre and hybrid composites. 29th International Conference SAMPE EUROPE, Hotel Mercure, Porte de Versailles "EXPO", Paris, France, 31st March to 2nd April, 2008.
 14. **P.M. Wambua**, Maya John and Rajesh Anandjiwala, Low velocity impact on cotton and hybrid composites. Fibre Reinforced Composites Conference, Port Elizabeth, South Africa, 9-12 Dec. 2007.
 15. James Njuguna, **Paul Wambua**, Tim Jackson, Stefan Liesker, Sam Monoogian,

- Gerardo Salazar and Erik Schuivens. Side Impact Protection Systems for Racing Car using Energy Absorbing Sandwich Structures, Fibre Reinforced Composites Conference, Port Elizabeth, South Africa, 9-12 Dec. 2007.
16. **Paul Wambua**, Huxiang Hu, Ignaas Verpoest. Low velocity impact of hemp reinforced polypropylene composites, 27th International Conference SAMPE EUROPE, Hotel Mercure, Porte de Versailles "EXPO", Paris, France, 27th to 29th March 2006.
 17. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. An anti-personnel mine protection based on natural fibres, The 4th International Symposium on Materials from Renewable Resources, MesseCongressCenter Erfurt, Germany, 11th - 12th September 2003.
 18. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. Mechanical behaviour and ballistic impact response of hemp and flax fabric polypropylene composites, 23rd Risø International Symposium on Materials Science: Sustainable natural and polymeric composites – science and technology, Risø National Laboratory, Roskilde, Denmark, 2-5 September 2002.
 19. **Paul Wambua** and Ignaas Verpoest. Hemp Fabric Reinforced Polypropylene Composites: An Investigation of the Mechanical Properties, 10th European Conference on Composite Materials (ECCM-10), Brugge, Belgium, June 3rd – 7th 2002.
 20. **Paul Wambua**, Jan Ivens and Ignaas Verpoest. Some mechanical properties of kenaf/polypropylene composites prepared using a film stacking technique, International Conference on Composite Materials (ICCM-13) Beijing, China, June 25-29, 2001.
 21. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. Development of an anti-personnel mine protection based on natural fibres, SAMPE Student Conference, Paris, 29th -31st March 2003.
 22. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. Ballistic properties of Flax and Hemp Fabric Polypropylene Composites, SAMPE Student Conference, Wijgmaal, Belgium, 29th – 30th January 2003.
 23. **Paul Wambua**, Bart Vangrimde, and Ignaas Verpoest. The response of hemp and flax fabric polypropylene composites subjected to ballistic impact, Faculty of Engineering Ph.D Symposium, Katholieke Universiteit Leuven, Belgium, 11th December 2002.
 24. **Paul Wambua**, Bart Vangrimde, Stepan Lomov and Ignaas Verpoest. Ballistic behaviour of hemp fabric reinforced polypropylene composites, 14th U.S. National Congress of Theoretical and Applied Mechanics, (USNCTAM14) Blacksburg, Virginia, USA, 23rd - 28th June 2002.
 25. **Paul Wambua** and Ignaas Verpoest. Mechanical properties of hemp fabric reinforced polypropylene composites, Symposium on Innovative materials and processes for polymer composites, Leuven, Belgium, 14th – 15th March 2002.
 26. **Paul Wambua**, Jan Ivens and Ignaas Verpoest. Natural fibre composites: Can they replace glass in fibre reinforced thermoplastics? ECO-1 conference, London, UK, 3rd - 4th September, 2001.

Selected Presentations in Seminars, colloquium and workshops

- **Paul Wambua**. Success and Challenges of natural fibre composites, Polymer

composites colloquium, Pretoria, South Africa, 22nd August, 2007.

- **Paul Wambua.** The properties and increasing applications of composite materials, Council of Industrial and Scientific Research (CSIR), Port Elizabeth, South Africa, 18th April, 2007.
- **Paul Wambua.** Composite Materials: Past, Present and Future, School of Engineering, Moi University, Eldoret, Kenya, 30th November 2005.
- **Paul Wambua** and Eric Oyondi. Training Opportunities for the Textile Industry in the National Universities, Stakeholders Seminar for The Textiles and Allied Industries, Directorate of Industrial Training, Athi River, Kenya, 17th June 2005.
- **Paul Wambua.** Composite Materials: A wake up call for Kenya, Faculty of Technology, Moi University, Eldoret, Kenya 31st March 2005.
- **Paul Wambua,** Quality control in the textile industry”, Maceom Engineering Consultants, Eldoret Kenya, May 1996.

Other Seminars, conferences and training courses attended

March 2018	The 3 rd International Conference on Manufacturing, Material and Metallurgical Engineering (ICMMME 2018), Kuala Lumpur, Malaysia
March 2017	The 7 th International Conference on Key Engineering Materials, Penang, Malaysia, March 11-13, 2017
November 2016	Academia-Public-Private Partnership Forum and Exhibitions, Julius Nyerere International Convention Centre, Dar es Salaam, Tanzania, organised by the Inter- University Council of East Africa (IUCEA).
April 2015	International Universities Networking Conference for Middle East and Africa held at Hilton Dubai Jumeirah Resort – Dubai
May 2013	Biopolymers workshop Mauritius 2013, setting up of a Bio-based industry in Mauritius
April 1998	Institution of Engineers of Kenya annual conference on developing and sustaining infrastructure.
August 1991	Local Seminar on Industrial sub-contracting organised by United Nations Industrial Development Organisation (UNIDO).
January- March, 1991	Machine Design and Manufacturing at the African Regional Centre for Engineering Design and Manufacturing (ARCEDEM), Ibadan, Nigeria.

Invited Journal article reviewer

2019	Journal of Industrial Textiles
2018	Journal of Materials Research and Technology
2017	Journal of Materials Research
2017	Journal of Industrial Textiles
2016	Journal of Materials Research
2014	Journal of Materials Science
2012	SCIENCE CHINA Physics, Mechanics & Astronomy

2012	Int. Journal of Mechanical and Materials Engineering
2012	AIAA Journal
2011	International Journal of Polymer Science
2011	Journal of Reinforced Plastics and Composites
2010	Journal of Polymer Engineering
2009	Journal of Express Polymer letters
2008	Journal of the Textile Institute
2007	Journal of Applied Polymer Science
2006	Journal of Industrial Textiles
2005	Kenya Journal of Mechanical Engineering
2004	Composites Science and Technology
2004	Composites A
2002	Composite Structures
1996	Journal of Agriculture, Science and Technology