

Curriculum Vitae

Name: Palihenage Nadeeka Dushani Tissera

NADEEKA DUSHANI TISSERA

Address: 26/1 Mayura Mawatha, Bellanwilla, Boralasgamuwa
Colombo,
Sri Lanka.

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Citizenship: Sri Lanka

Residency : Sri Lanka

Details of Education and Training

- **BSc Engineering in Textile and Clothing Engineering** at
University of Moratuwa, Sri Lanka. (7 semester full time course)
Overall Grade Point average- **3.74 (first class honors)** out of 4.2
- **Master of Engineering, School of Aerospace Materials and Mechatronic Engineering** at
University of Sydney, Australia, **Honors - 80.65%**

<i>Subject</i>	<i>result</i>	<i>no of credits</i>
Thesis	86	12
Advanced Engineering Materials	84	6
Advanced Product life cycle design	80	6
Computational Biomedical Engineering	90	6
Applied Finite Element Analysis	65	6
Advanced Aerodynamics	73	6
Aviation Risk management	81	6

- **Projects carried out during masters and undergraduate studies.**
 - Modeling and dynamic structural analysis of an aircraft wing (Pazmany PI-2, left wing) with spar web, ribs using Strand7 FEA software.
 - Development and analysis of an elbow implant using solid work and ANSYS software.
 - Develop MATLAB codes for 1D, 2D and 3D solid structural analysis for FEA (Finite Element Analysis).
 - Development of a mathematical model to define the relationship between weft density and warp yarn tension in high speed water jet weaving machine

Professional Qualifications

- I am a **CIMA** (Chartered Institute of Management Accountants – United Kingdom) pass finalist
Foundation Level - Obtain Certificate in Business Accounting
Managerial Level –Advanced Diploma in Management Accounting
Strategic Level – Completed
Top CIMA (case study) – Completed in 2009

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- Completed the **CCS** course (Certificate in Computer Science) at **NIBM** (<http://www.nibm.lk/>).

Details of Awards and Prices

- (1) First class Honors Degree of Bachelor of the Science of Engineering.
- (2) Asian Development Bank-Japan Government Scholarship to read for the Master of Engineering studies at University of Sydney, Australia.
- (3) Honors (80.65%) Masters of Engineering degree from University of Sydney, Australia.
- (4) Member of Golden Key International Honor Society.
- (5) Led & coordinated the exhibition team that won the runner-up award for most innovative display in TECHNO 2010 at BMICH, Colombo, Sri Lanka

Patents

1. Tissera P.N.D, Wijesena R.N, De Silva N. (2013) Hydrophobic Surface Treatment Compositions Comprising Titanium Precursors.
USA, Application No: 14/024, 879. Filed date: Sep 12. 2013. Publication No: US 2015/0072171 A1. Publication date: Mar. 12, 2015.
Patent Sold to LANKEM Pvt Ltd.
2. Wijesena R.N, Tissera P.N.D, De Silva N. (2013) Moisture Management Fabric.
USA, Application No: 14/024, 906. Filed date: Sep 12. 2013. Publication No: US 2015/0072582 A1. Publication date: Mar. 12, 2015
3. PERERA R, TISSERA N, WIJESENA R, KARUNANAYAKE L, & ALWIS A. D. (2011) Composition for stain and odor removal from bio polymeric fabrics and a process thereof. Sri Lanka, Application No : 16366

Details of Journal paper Publications

Nadeeka D. Tissera, Ruchira N. Wijesena, K.M. Nalin de Silva. Ultrasound energy to accelerate dye uptake and dye–fiber interaction of reactive dye on knitted cotton fabric at low temperatures. Volume 29, March 2016, Pages 270–278

Journal of Ultrasonics Sonochemistry

[doi:10.1016/j.ultsonch.2015.10.002](https://doi.org/10.1016/j.ultsonch.2015.10.002)

<http://www.sciencedirect.com/science/article/pii/S1350417715300456>

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Nadeeka D. Tissera, Ruchira N. Wijesena, J. Rangana Perera, K.M. Nalin de Silva, Gehan A.J. Amaratunge. Hydrophobic cotton textile surfaces using an amphiphilic grapheme oxide (GO). Volume 324, 1 January 2015, Pages 455–463.

Journal of Applied Surface Science

[doi:10.1016/j.apsusc.2014.10.148](https://doi.org/10.1016/j.apsusc.2014.10.148).

<http://www.sciencedirect.com/science/article/pii/S0169433214024143>

Ruchira N. Wijesena, **Nadeeka D. Tissera**, K.M. Nalin de Silva, Gehan A.J. Amaratunga. Slight carboxymethylation of cotton as a surface modification for enhanced grafting of nano TiO₂ particles for self-cleaning fabrics. Volume 398, March 2015, Pages 107-114

Journal of Molecular Catalyst A: Chemical,

[doi:10.1016/j.molcata.2014.11.012](https://doi.org/10.1016/j.molcata.2014.11.012)

<http://www.sciencedirect.com/science/article/pii/S1381116914005226>

Ruhira N. Wijesena, **Nadeeka Tissera**, Yasun Y. Kannangara, Yuan Lin, Gehan A.J. Amaratunga, K.M. Nalin de Silva. A method for top down preparation of chitosan particles and nano fibers.

Journal of Carbohydrate Polymers,

[doi:10.1016/j.carbpol.2014.10.055](https://doi.org/10.1016/j.carbpol.2014.10.055)

<http://www.sciencedirect.com/science/article/pii/S0144861714010674>

Ruchira N. Wijesena, **Nadeeka Tissera**, Rangana Perera, K.M. Nalin de Silva. Side selective surface modification of chitin nano fibers on anionically modified cotton fabrics.

Volume 109, 30 August 2014, Pages 56–63.

Journal of Carbohydrate Polymers,

[doi:10.1016/j.carbpol.2014.03.035](https://doi.org/10.1016/j.carbpol.2014.03.035).

<http://www.sciencedirect.com/science/article/pii/S0144861714002677>

Ruchira N. Wijesena, **Nadeeka D. Tissera**, K.M. Nalin de Silva. Coloration of cotton fibers using nano chitosan.

Volume 134, 10 December 2015, Pages 182–189

Journal of Carbohydrate Polymers,

[doi:10.1016/j.carbpol.2015.07.088](https://doi.org/10.1016/j.carbpol.2015.07.088)

<http://www.sciencedirect.com/science/article/pii/S0144861715007171>

Nadeeka Tissera, Sandun Fernando, Madhurangi Gamage, S.Rajiththa, S. Sharma, Mathematical modeling of loom gaiting system to define the relationship between warp yarn tensions and pick density. *International Journal of Mathematical modeling simulation and applications*. Vol.1, issue 3, pp. 277-290.

<https://sites.google.com/site/ijmmsa/vol-1-3>

Details of Conference paper Publications

Tissera P.N, Sarasanantham P, Wijesena R, Karunanayaka L, Montmorillonite clay nano particle embedded nano fibers for UV protected curtains to be used in smart house with nano technology. *International Conference on Sustainable Built Environment (ICSBE-2011)*. Colombo, Sri Lanka.

http://www.civil.mrt.ac.lk/conference/ICSBE_2010/vol_03/13.pdf

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Name: Palihenage Nadeeka Dushani Tissera

N. Tissera, R. Wijesena, R. Perera, L. Karunanayaka, A. De. Alwis, Evolution of Carbon Nano Fibers From Poly Acrylo Nitrile (PAN) Nano Fibers, *International Conference on Advanced Materials, Science and Engineering (ICAMSE-2012)*. Colombo, Sri Lanka

N Tissera, R Wijesena, R Perera, L Karunanayka , A De Alwis. Preparation and comparison of polyurethane nano composites. *1st National Nanotechnology Conference-2012*. Colombo, Sri Lanka. <http://dl.nsf.ac.lk/bitstream/1/9326/1/1.Nadeeka%20Tissera.pdf>

N. Tissera, R. Perera, R. Wijesena, L. Karunanayake , A. De Alwis. Nano Titanium dioxide embedded nano fibers spun from electro spinning technology to produce stain removal and UV blocking nano fibers. *International Symposium on Polymer Science and Technology 2012 in Collaboration with Industries, Institutions and Universities (IIUPST 2012)*. Colombo, Sri Lanka. <http://journals.sjp.ac.lk/index.php/IIUPST/article/view/619>

Nadeeka Tissera, Ruchira N. Wijesena, YASUN K, K.M. Nalin de Silva. Electricity conductive cotton fabric using reduced graphene oxide. *International conference on Nano science and Nano technology, (ICNSNT 2014)*. Colombo, Sri Lanka

Nadeeka Tissera, Ruchira N. Wijesena, K.M. Nalin de Silva. Polyaniline nano whiskers grafted electricity conductive cotton fabrics. *International conference on Nano science and Nano technology, (ICNSNT 2015)*. Colombo, Sri Lanka

Nadeeka Tissera, Ruchira N. Wijesena, Rangana Perera, P Sarasanantham, Ajith. De Alwis, K.M. Nalin de Silva .Ultrasound induced cavitation for efficient dyeing of knitted cotton fabrics. *International conference on Nano science and Nano technology, (ICNSNT 2014)*. Colombo, Sri Lanka

Ruchira N. Wijesena, **Nadeeka Tissera**, Rangana Perera, L. Karunanayake, A. De Alwis, K.M. Nalin de Silva. Extraction and characterization of chitin and chitosan biopolymers from local portunus pelagiacus (Blue swimmer crab). *International conference on Nano science and Nano technology, ICNSNT 2014*). Colombo, Sri Lanka

R. Perera, **N. Tissera**, R. Wijesena, L. Karunanayake, A. De Alwis. UV blocking fabrics with nano titanium dioxide. *1st National Nanotechnology Conference -2012*. Colombo, Sri Lanka.

R. Wijesena, **N. Tissera**, R. Perera, L. Karunanayaka, A. De. Alwis. Modification of cotton fiber surfaces with α -chitin nano fibers. *International Conference on Advanced Materials, Science and Engineering (ICAMSE-2012)*. Colombo, Sri Lanka.

R. Wijesena, **N. Tissera**, R. Perera, L. Karunanayaka, A. De. Alwis. Preparation and characterization of super hydrophilic silica coatings and their application as antifogging glass. *1st National Nanotechnology Conference-2012*. Colombo, Sri Lanka. <http://dl.nsf.ac.lk/bitstream/1/9336/1/3.%20Ruchira%20Wijesena-%20Antifogging%20glass.pdf>

R. Wijesena, **N. Tissera**, R. Perera, L. Karunanayaka. Preparation and characterization of α -Chitin nano fibers from crab shells of *Portunus pelagicus* (blue swimmer crab). *International Symposium on Polymer Science and Technology 2012 in Collaboration with Industries, Institutions and Universities (IIUPST 2012)*. Colombo, Sri Lanka. <http://journals.sjp.ac.lk/index.php/IIUPST/article/view/600>

R. Wijesena, **N. Tissera** ,R. Perera, L. Karunanayaka. Hydro dynamically and mechanically assisted wet spinning of elastomeric polyurethane filaments. *International Symposium on Polymer Science and Technology 2012 in Collaboration with Industries, Institutions and Universities (IIUPST 2012)*. Colombo, Sri Lanka.

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Name: Palihenage Nadeeka Dushani Tissera

R. Perera, R. Wijesena, **N. Tissera**, L. Karunanayake, A. De Alwis. Synthesis and characterization of Ag@TiO₂ core shell nano particles and its UV induced electron hole separation. *International Conference on Advanced Materials, Science and Engineering (ICAMSE-2012)*. Colombo, Sri Lanka.

R. Wijesena, R. Perera, **N. Tissera**, L. Karunanayaka, A. De. Alwis. Effect of silver nanoparticles on florescence behavior of graphene oxide. *International Conference on Advanced Materials, Science and Engineering (ICAMSE-2012)*. Colombo, Sri Lanka.

R. Perera, R. Wijesena, **N. Tissera**, L. Karunanayake. Enhancement of photo catalytic activity of nano TiO₂ by doping with nitrogen and its stain removal properties. *International Symposium on Polymer Science and Technology 2012 in Collaboration with Industries, Institutions and Universities (IIUPST 2012)*. Colombo, Sri Lanka.

R. Wijesena, **N. Tissera**, R. Perera, L. Karunanayaka, A. De. Alwis. Preparation and characterization of Indium doped Tin oxide coated glasses and its IR transmission control property. *1st National Nanotechnology Conference-2012*. Colombo, Sri Lanka.
<http://dl.nsf.ac.lk/bitstream/1/9344/1/4.%20Ruchira%20Wijesena-%20Control%20Property.pdf>

R. Wijesena, R. Perera, **N. Tissera**, L. Karunanayaka. Chitosan/ Montmorillonite composite beads for pH triggered release of silver nanoparticles. *International Symposium on Polymer Science and Technology 2012 in Collaboration with Industries, Institutions and Universities (IIUPST- 2012)*. Colombo, Sri Lanka

Paper article with the title '**Dawn of the dwarf**'. The Nations, 17th December 2011.
<http://www.nation.lk/edition/fine/item/96-dawn-of-the-dwarf.html>.

Previous Research, Teaching and Training Experience

- June 2010 to date: Working as a Senior Research Scientist at SLINTEC Pvt Ltd (Sri Lanka Institute of Nanotechnology www.slintec.lk). Engaged in nanotechnology material related projects for Sri Lankan industries. Member of the Nano materials research cluster.
- During my masters studies and working as a research scientist at SLINTEC I have developed a sound knowledge and competency in handling and interpreting results using the following equipment.
 - TGA – Thermo Gravimetric Analyzer
 - XRD – X-Ray Diffraction meter
 - DSC – Differential Scanning Calorimeter
 - FTIR spectrophotometer – Fourier Transform Infrared Spectrophotometer
 - UV-VIS spectrophotometer
 - Zeta particle size analyzer
 - AFM – Atomic Force Microscope
 - DMA – Dynamic Mechanical Analyzer

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Name: Palihenage Nadeeka Dushani Tissera

- SEM – Scanning Electron Microscope
 - AAS – Atomic Absorption Spectrophotometer
 - Fluorometer
 - SEM – Scanning Electron Microscope
 - XRF – X Ray Fluorescence Sepctrophotometer
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- Master's Thesis at University of Sydney, Australia: **Fracture Behavior of Cured Epoxies Modified by Nano-Halloysite: Effects of Chemical and Mechanical Treatments.**
 - National Conference on Advanced Materials for Emerging Technology (NCAMET – 2007) University of Peradeniya, Kandy
 - October 25th -29th 2011: Training workshop on foresight analysis (at National Science Foundation, Sri Lanka). This training program covered
 - Foresight Practice from around the world
 - Systemic Foresight Methodology (SFM)
 - Practical sessions :
 - Scoping a National Research Foresight Exercise for Sri Lanka
 - Main trends and issues for Research in Sri Lanka
 - Scenarios for the future of Research in Sri Lanka
 - Key drivers of change for Research in Sri Lanka
 - Roadmaps for priority areas for Research
 - Scenarios and priorities for Research in Sri Lanka
 - Technology Road mapping: Connecting the future with the present
 - October 2009 to June 2010: Worked as a **Graduate Project Engineer** at Amsafe Bridgeport Pvt Ltd. In the business of manufacturing Aerospace textile products to overseas market. Use finite element analysis software to analyze the final products and testing those physically using equipment such as tensile testing machine.
 - January 2007 to June 2008: **Temporary Lecturer**, University of Moratuwa
I took the subject areas of Weaving Technology and fiber science for BSc Engineering undergraduates. At the same time supervised students in the Textile Department laboratories in Textile Testing, Weaving and Fiber Science practical, making sure they fully understood the subject area and successfully completed their practical work.
 - August 2006 – December 2006: Worked as a Management Trainee at **MAS Active, Linea Intimo** . Developing seamless garments using weft knitting technology according to customer (NIKE, ADIDAS, REEBOK) requirements.

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- Feb 2005- Sep 2005: **BSc Industrial Placement** six months of industrial training in **Body Line Pvt Ltd (MAS holdings)** ,Horana. And the final two weeks of training at **MAS Active, Linea Intimo (MAS holdings)**, Biyagama.

Current Research

1. Graphene oxide coated thermal conductive cotton fabrics (2014/2015)
2. Graphene oxide coated hydrophobic cotton fabrics (2014/2015)
3. Durable protective coating for pigment printed Ethyl Vinyl Acetate base
4. Use the concept of shape memory polymer coating on wearable textiles for the efficient moisture management.(2012/2013)
5. Development of nano coating on CFL bulb to reduce the UV emission (2014/2015)
6. Preparation and characterization of super-hydrophobic cotton fabric using Graphite Oxide nano plates. Synthesis of single layer Graphite Oxide using improved Hummer's method (2014/2015)
7. Preparation of super hydrophobic textile surface using TiO₂ sol-gel technique (2012/2013)
8. Development of nano technology based textiles to get self-cleaning effect using photo catalytic nano materials. Use of cross linkers to bind the nano particle to the fabric chemically. explore the mechanism to obtain nano particles in dispersion form and in situ preparation using sole-gel technique (2010/2011)
9. Use of ultrasound in acoustic medium to exploit cavitation formation to assist sono chemical reactions. Theoretical analysis of cavitation formation using MATLAB. Practical analysis of cavitation formation using chemical methods and use of modeling software (COMSOL and ANSYS) to analyze the cavitation formation when parameters such as bath temperature, ultrasound frequency, power, bath dimension and bath material change (2010/2011)
10. Use electro spinning method to produce nano fibers and nano material embedded nano fibers to get special properties such as self-cleaning (Titanium dioxide) and UV blocking (MMT clay nano particles) (2012/2015)
11. Modification of polyurethane polymer used in textile industry using nano materials and nano technology to obtain selective glass transition temperature (2011/2012)
12. MATLAB programing to analyze the contact angle of a liquid drops on a hydrophobic surface (2010/2011)
13. MAT LAB programing to analyze the wrinkle area percentage of a fabric, particle size distribution analysis with measurement of area of each particle (spherical or rod shape) of an SEM/TEM image (2010/2011)

Declaration

I hereby declare information provided above is true and fair, which is not misleading to make incorrect decision about my qualifications.



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