

John Tharakan, Ph.D.

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I. Education

- B.Tech.1982 Chemical Engineering, Indian Institute of Technology, Madras, India
MS, 1983 Engineering Science (Chemical Engineering), University of California, San Diego, California
PhD, 1986 Biochemical Engineering, University of California, San Diego, California

II. Research and Teaching Interests

Kinetics and Reactor Design; Environmental Engineering; Biochemical Engineering; Bioenvironmental Engineering; Engineering Education; Sustainable Development; Appropriate Technology; Ethics in Science and Engineering; Service Learning.

III. Fellowships, Honors and Awards

Scientific and Research Awards and Honors:

- 2015 – 2016 Fulbright-Nehru Senior Scholar to India
2006 – 2007: Senior Fulbright Research Scholar to India
1997 – 2005: Consistently Received Faculty Merit Award, Howard University
1996 – 1997 Faculty Sustained Superior Performance Award
1995 – 1996 Faculty University Merit Service Award

Educational Honors and Awards:

- 2013 Outstanding Contribution to Africa and the African Diaspora, Howard University Faculty Senate Award.
2011 Best Presentation Award, *International Engineering and Technology Education Conference (IETEC 2011)*, Kuala Lumpur, January 2011.
2009 Outstanding Teaching Award, Howard University, Faculty Senate
2008 Outstanding Syllabus Award, Howard University, Center for Teaching, Learning and Assessment (CETLA), *Honorable Mention*
2007 Teaching with Technology Award, Howard University, Center for Teaching, Learning and Assessment, *Honorable Mention*
2006 Inspirational Interdisciplinary Project Award, Howard University Faculty Senate
2005 Outstanding Paper Contribution Platinum Award, 8th UNESCO International Center for Engineering Education Conference on Engineering Education, Kingston, Jamaica, February 2005
2004 1st Honorable Mention Award, 1st International Conference on Appropriate Technology, Bulawayo, Zimbabwe, July 2004.
2002 Best Paper Award, Environmental Engineering Division, American Society of Engineering Education, Presented at Annual Meeting, Montreal, Canada, 2002
2001–2002 Outstanding Teaching Award, College of Engineering, Architecture and Computer Sciences, Howard University
1996-1997: Outstanding Teacher Award, School of Engineering, Howard University

IV. Professional Positions

Administrative/Advisory

2017 – 2018	Chair, College of Engineering Appointment, Promotion and Tenure Committee, Howard University
2010 – 2017	Member, Board of Scientific Counselors, Executive Committee, US EPA
2009 – Present	Faculty Leadership Council, Engineers Without Borders-USA
2009 – 2013	Chair, Faculty Performance Evaluation System Committee, College of Engineering, Architecture and Computer Sciences, Howard University.
1994 - 2016 (Except '02-'05)	Director of Graduate Studies, Department of Chemical Engineering, Howard University, Washington, DC
2009 – 2010	Interim Chair, Department of Chemical Engineering, Howard University
2002 - 2005	Chair, Department of Chemical Engineering, College of Engineering Architecture and Computer Science (CEACS), Howard University.
2002 – Present	Chair, Educational Programs and Policies Assessment Committee, Department of Chemical Engineering, CEACS, Howard University
1990-Present	Director, Biochemical and Bioenvironmental Engineering Research Laboratory, Howard University

Academic

2015 – 2016	Fulbright-Nehru Senior Research Scholar, Cochin University of Science and Technology, Kochi, India
2008 – 2009	CETLA Fellow (Center for Excellence in Teaching, Learning and Assessment), Howard University, Washington, DC, USA
2006 – 2007	Senior Fulbright Research Scholar, The New College, Chennai, India
2001 – Pres:	Professor of Chemical Engineering, College of Engineering Architecture and Computer Sciences, Howard University, Washington DC, USA.
2004 – 2010	Adjunct Professor of Public Health, College of Medicine, Howard University.
1995 – 2001:	Associate Professor, Chemical Engineering, CEACS, Howard University
1990 – 1995:	Assistant Professor, Department of Chemical Engineering, Howard University, Washington, DC
1982 – 1986:	Teaching Assistant, University of California, San Diego

Research and Technical

1994 – 2000:	Research Collaborator, Brookhaven National Laboratories, LI, NY
1989 – 1990:	Scientist I, American Red Cross, Blood Research Lab, Rockville MD
1986 – 1989:	Visiting Scientist, American Red Cross, Rockville, M.D.
1982 – 1986:	Research Assistant, University of California, San Diego
1981 – 1982:	Research Assistant, Indian Institute of Technology, Madras, India

V. Publications

Publications in Appropriate Technology, Ethics and Engineering Education

- John Tharakan, "Incorporating Ethics into Freshman and Senior Level Chemical Engineering Courses," *Proc. 6th Intl. Conference on Chemistry, Chemical Engineering and Chemical Processes (CCECP 2018)*, pp. 35, GSTF (www.globalstf.org) Singapore, March 2018.
- John Tharakan, "Developing Creative and Critical Thinking Skills through Open Ended Design Projects at the Freshman and Senior Level" *Journal of Engineering Education*

Transformation (on-line, 2018), Proc. 4th Int'l. Conf. on Transformations in Engineering Education, Bennett University, Greater Noida, India, January 4-6, 2018.

- John Tharakan, “Service Learning in Graduate Environmental Engineering – Fieldwork Empowering Communities,” *Proc. 4th Int'l. Engineering and Technology Education Conference (IETEC) 2017*, Hanoi, Vietnam, December 4 – 6, 2017.
- John Tharakan, “Service Learning for Community Engagement, Knowledge and Technology Transfer, Capacity Building and Sustainable Development” *Invited Presentation at the 3rd International Conference on Transformations in Engineering Education (ICTIEE 2017)*, Jan 6 – 8 (Hyderabad), Jan 9 – 10 (Rajkot) and Jan 11 – 13 (Jaipur) India, 2017
- John Tharakan, “Anaerobic Digestion as a Low Cost Ecofriendly Treatment Technology for Rice Mill Process and Waste Water Effluents”, *Accepted for Presentation at 7th International Conference on Sustainable and Built Environment, (7th ICSBE 2017)* Kandy, Sri Lanka, Dec 16 – 18, 2016.
- John Tharakan¹, Sunny George², Ratish Menon³ and Pramod P Thevannoor “Service Learning in a Graduate Environmental Engineering Program – Community Engagement, Knowledge and Technology Transfer for Capacity Building and Sustainable Development”, Extended Abstract published in: *Proc. 7th Int'l Conf. on Appropriate Technology, Victoria Falls, Zimbabwe, November 2016*.
- John Tharakan and Joseph Thomas, “**Successful Appropriate Technology Commercialization for Sustainability**”, *Extended Abstract Published in: Proc. 7th Int'l Conf. on Appropriate Technology, Victoria Falls, Zimbabwe, November 2016*.
- John Tharakan, “**Indigenous Knowledge Systems for Water Harvesting, Storage and Conservation – Appropriate Technologies for Drought-Prone Times in India**”, *Proc. 7th Int'l Conf. on Appropriate Technology, Victoria Falls, Zimbabwe, November 2016*.
- Tharakan, J., “Indigenous Knowledge Systems – A Rich Appropriate Technology Resource,” *African J. Sci. Tech. Innovation and Development*, 7(1) pp 52 – 57 (2015).
- Tharakan, J., “Integration of Indigenous Knowledge Systems into Appropriate Technology Development,” *Proc. 6th International Conference on Appropriate Technology, K. Madzima (ed) Policy and Standards Section; Nairobi, Kenya, November 2014*.
- Tharakan, J., (ed) *Proc. 6th Int'l Conference on Appropriate Technology, Water and Sanitation Paper Section*, Kenyatta University, Nairobi, Kenya, November 2014.
- Tharakan, J., (ed) *Proc. 6th Int'l Conference on Appropriate Technology, Green Economy and Innovation Paper Section*, Kenyatta University, Nairobi, Kenya, November 2014.
- Tharakan, J., (ed) *Proc. 6th Int'l Conference on Appropriate Technology, Health Paper Section*, Kenyatta University, Nairobi, Kenya, November 2014
- Verharen, C., B. Gutema, J. Tharakan, F. Bugarin, J. Fortunak, G. Kadoda, M. Liu and G. Middendorf, “African Philosophy: A Key to African Innovation and Development,” *African Journal of Science, Technology, Innovation and Development*, DOI: [10.1080/20421338.2014.902565](https://doi.org/10.1080/20421338.2014.902565) (2014).
- Tharakan, J., “Pedagogy, Technology and Culture – Using Service Learning and Appropriate Technology for Capacity Building,” in Kadoda (ed) *Proc Workshop on Knowledge and Innovation – Technology, Pedagogy and Culture*, Khartoum, Sudan, March 2014.
- Verharen, C, J. Tharakan, G. Middendorf, G. Kadoda, J. Fortunak and F. Bugarin, “Survival Ethics in the Real World – The Research University and Sustainable Development,” *J. of Science and Engineering Ethics*, **20**, 135-154, March 2014.
- Tharakan, J., “Service Learning in Engineering Education for Capacity Building and

Sustainable Development”, *Proc. 2nd Intl. Engineering and Technology Education Conference, November 3-7, 2013, Ho Chi Minh City, Vietnam.*

- Tharakan, J., “Engaging Youth in Appropriate Technology: Service Learning in Engineering Education,” Workshop on Appropriate Technology for the 21st century: Sustainable Development in Africa, [Invited Presentation] *Kenyatta University, Nairobi, Kenya, May 27th, 2013.*
- Tharakan, J., “Waste No, Resource Yes: Rethinking Pollution Prevention and Waste Management Paradigms for the 21st Century in Developing Countries,” *Proc. Int’l. Conf.on Technologies for Sustainable Waste Management in Developing Countries, pp.11, Vignan University, Vadlamudi, AP, India, August 2013.*
- Tharakan, J., “Service Learning in Engineering Education for Capacity Building In Appropriate Technologies for Sustainable Development,” *Proc. Intl Conf on Sustainable Development and Governance: Building Commerce and Communities pp 55- 62, Amrita University, Coimbatore, India, December, 2012*
- Tharakan, J., “Indigenous Knowledge Systems – A Potentially Deep Appropriate Technology Resource,” in Trimble et al (eds) *Proc. 5th Int’l Conference on Appropriate Technology pp. 253-260, (ISBN-978-160725-562-8) Pretoria, Republic of South Africa, November 2012.*
- Verharen, C., J. Tharakan, F. Bugarin, J. Fortunak and G. Middendorf, “Survival Ethics in the Real World – A Global Model for Experimental Ethics,” in Trimble et al (eds) *Proc. 5th Intl Conf on Appropriate Technology pp. 276-283, (ISBN-978-160725-562-8)Pretoria, South Africa, November 2012.*
- Verharen, C, J. Tharakan, G. Middendorf, G. Kadoda, and M. Castro, “Introducing Survival Ethics into Engineering Education and Practice,” *J. of Science and Engineering Ethics, 13, December, 2011.*
- Tharakan, J., “Potential for Implementing Renewable Energy Projects through Service Learning Engineering Education Experiences,” in Momoh, J. (ed) *Proc. Intl. Conf. Power Systems Operation and Planning – Sustainable Energy Development, pp.178-183, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya, January 2012.*
- Tharakan, J., “Indigenous Knowledge Systems and Appropriate Technology – Waiting for Knowledge Management,” in Gada et al (eds) *Proc. Workshop on Knowledge Management for Capacity in Africa – Harnessing Tools for Development and Innovation, pp. 227 – 232, University of Khartoum, January 2012.*
- Tharakan, J., “Socially Relevant Computing – The Place of Indigenous Knowledge Systems,” *Proc. Socially Relevant Computing Workshop, University of Pretoria, August 2011.*
- Tharakan, J., “Institutionalizing a Student-Centered Community-Based Service Learning Engineering Education Experience,” *Proc. Int’l Engineering and Technology Education Conference, IETEC 2011, Kuala Lumpur, Malaysia, January 2011.*
- V Dzidzeniyo, J Fortunak, E Hansen, J Tharakan and J Trimble, (eds), *Proc. 4th Int’l Conference on Appropriate Technology, Accra, Ghana, November 2010.*
- Tharakan, J, “The Critical Need for Appropriate Technology,” in Dzidzeniyo et al (eds), *Proc. 4th Int’l Conference on Appropriate Technology, Accra, Ghana, November 2010, pp v.*
- Tharakan, J, “Appropriate Technology for Water and Sanitation,” in Dzidzeniyo et al (eds), *Proc. 4th Int’l Conference on Appropriate Technology, Accra, Ghana, November 2010, pp 5 – 12.*

- Verharen, C and J. Tharakan, “Barefoot Ethics: Social Justice Through An Appropriate Technology Checklist,” in Dzidzeniyo et al (eds), Dzidzeniyo et al (eds), *Proc. 4th Int’l Conference on Appropriate Technology*, Accra, Ghana, November 2010, pp 36 – 42.
- Tharakan, J and J Trimble, (eds), *Proc. 3rd Int’l Conference on Appropriate Technology*, Kigali, Rwanda, November 2008 (ISBN 978-1-60725-559-8).
- Tharakan, J, “The Relevance of Appropriate Technology,” in Tharakan, J. and J. Trimble (eds) *Proc. 3rd Int’l. Conference on Appropriate Technology, Kigali, Rwanda, November 2008*(ISBN 978-1-60725-559-8), pp. 10 – 13.
- Tharakan, J, M Mitchell, J Moore and G Jenkins, “Design of a Combined Solar Energy System for a Remote Flux Tower and a Rural Community,” in Tharakan, J. and J. Trimble (eds) *Proc. 3rd Int’l. Conference on Appropriate Technology, Kigali, Rwanda, November 2008*(ISBN 978-1-60725-559-8), pp. 51- 58.
- J Tharakan, “Educating Engineers in Appropriate Technology for Development,” *World Transactions on Engineering and Technology Education*, 5 (1) 233 – 237, 2006.
- J Tharakan, M Castro, J Trimble, B Stephenson, and C Verharen, “Diversifying Engineering Education: A Seminar Course on Ethics and Philosophy of Appropriate Technology,” *Global Journal of Engineering Education*, 9 (2), 2005.

Publications in Environmental Engineering and Biotechnology:

- Tharakan, J., “Cradle to Cradle: Pollution Prevention and Resource Management in the 21st Century,” *Workshop on Knowledge Management for Environmental Sustainability: Towards a Sudanese Society that is Environmentally Conscious and Conserving*, DAL Excellence Center, Khartoum, Sudan, June 2013 (Keynote Presentation).
- J Tharakan, “Hollow Fiber Bioreactors: From Biotherapeutics Production to Wastewater Treatment,” in Chandra, S (ed) *Proc. Intl.Conf. on the Impact of Physical Sciences on Biology*, pp.45 – 52, Queen Mary’s College, Chennai, India, July 2011.
- J Tharakan, “An Investigation of Biotransformation and Bioaccumulation of Polychlorinated Biphenyls (PCBs) in Vermicompost Systems with *Eisenia foetida* Earthworms,” *Proceedings of the International Conference on Environmental Pollution, Restoration and Management*, Ho Chi Minh City, Vietnam, March 2010.
- J Tharakan, “Potential for Algal Biomass as a Sustainable Resource for Energy Production and Environmental Remediation,” in Krishnamurth, V (ed) *Proc. Intl Conf. Algal Biomass, Resources and Utilization (ICABRU 2009) pp 11 – 17; Algal Biomass*, Krishnamurti Institute of Algae, Chennai, India (2010).
- J Tharakan, “Decentralized Renewable Energy Systems as a Core Rural Development Policy,” *Proceedings Symposium on Anaerobic Degradation and Renewable Energy Through Microbes*, Birla Institute of Science and Technology, Goa, India, January 13 – 15, 2009.
- J Tharakan (ed), *Proceedings of Symposium on Biological Methods of Waste Treatment and Management in South India*, The New College, Chennai, February 2007.
- J Tharakan, “Biological transformation of PCBs in Hazardous Site Waste Sludge,” in *Waste Management and The Environment III*, Popov et al (eds), 427 – 436, WIT Press, Southampton, UK, 2006.
- J Tharakan, D Tomlinson, A Addagada and A Shafagati, “Biotransformation of PCBs in Contaminated Sludge: Potential for Novel biological Technologies,” *Engineering in Life Sciences*, 6 (1) 43 – 49, 2006.

- J Tharakan, A Addagada, D Tomlinson, and A Shafagati, "Vermicomposting for the Bioremediation of PCB Congeners in SUPERFUND Site Media," in *Waste Management and The Environment II*, Popov and Itoh (eds), pp. 117, WIT Press, Southampton, UK, 2004.
- RC Chawla, R Liou, JH Johnson and JP Tharakan, "Biodegradation of PCBs in Aqueous and Soil Systems," in Wise et al., (Eds.) *Remediation of Hazardous Waste Contaminated Soils*, pp. 237 – 264, Marcel Dekker, New York, 2000.
- JP Tharakan and J Gordon, "Cometabolic Transformation of TNT using Aromatic and Non-aromatic Cosubstrates," *Chemosphere*, 38 (6) 1323-1330 (1999).

Publications in Protein Separations and Purification

- JP Tharakan and M Belizaire, "Comparison of Axial and Radial Flow Columns for Immunoaffinity Chromatography of Factor IX," *Isolation and Purification*, 2, 103-112 (1996).
- JP Tharakan and M Belizaire, "Ligand Efficiency in Axial and Radial Flow Chromatography," *J. of Chromatography*, 702, 191-196 (1995).
- J Tharakan and V Ayers, "Ligand Distribution in Immunoaffinity Chromatography," *International Journal of Biochromatography*, August 1994.
- Tharakan, J and M Belizaire, "Protein Band Dispersion in Radial and Axial Flow Chromatography," *Journal of Liquid Chromatography*, 1994.
- Tharakan, J, and M Belizaire, "Comparison of Axial and Radial Flow Columns for Immunoaffinity Purification of Factor IX," *Isolation and Purification*, 2 (2), 1994.
- J Tharakan, F Highsmith, D Clark and W Drohan, "Physical and Biochemical Characterization of Five Commercial Resins for Immunoaffinity Purification of Factor IX," *J. of Chromatography*, 595, 103-111, 1992.
- FA Highsmith, T Regan, DB Clark, WN Drohan and JP Tharakan, "Evaluation of CNBr, FMP and Hydrazide Resins for Immunoaffinity Purification of Factor IX," *BioChromatography*, 12 (3), 418 (1992).
- C Orthner, RD Madurawe, T Morcol, J Tharakan, FA Highsmith and WH Vellander, "Comparison of Performance of Immunosorbents Prepared by Site-Directed or Random Coupling of Monoclonal Antibodies," *J. of Chromatography*, 558, 55, 1991.
- John Tharakan, David Clark and William Drohan, "Effect of Feed Flow Rate, Antigen Concentration and Antibody Density on Immunoaffinity Purification of Coagulation Factor IX," *J. of Chromatography*, 522, 153 (1990).
- W Vellander, C Orthner, J Tharakan, R Madurawe, A Ralston, D Strickland, and W Drohan, "Process Implications for Metal-Dependent Immunoaffinity Interactions," *Biotechnology Progress*, 5, 119 (1989).
- J Tharakan, D Gee and D Clark, "A Semi-Continuous Method for Purification of Factor IX from Human Blood Plasma," *Vox Sanguinis*, 57, 233 (1989).

Publications in Cell Culture and Bioreactors

- JP Tharakan and PC Chau, "Modeling and Analysis of Radial Flow Mammalian Cell Culture," *Biotechnology and Bioengineering*, 29, 657 (1987).
- JP Tharakan, A Lucas, and PC Chau, "Hybridoma Growth and Antibody Secretion in Serum-supplemented and Low-protein Serum-Free Media," *J. of Immunological Methods*, 94, 225 (1986).

- JP Tharakan and PC Chau, "Operation and Pressure Distribution of Immobilized Cell Hollow Fiber Bioreactors," *Biotechnology and Bioengineering*, 28, 1064 (1986).
- JP Tharakan and PC Chau, "A Radial Flow Hollow Fiber Bioreactor for the Large Scale Culture of Mammalian Cells," *Biotechnology and Bioengineering*, 28, 453 (1986).
- JP Tharakan, SL Gallagher and PC Chau, "Hollow Fiber Bioreactors for Mammalian Cell Culture," in *Upstream Processes: Equipment and Techniques*, (*Advances in Biotechnological Processes*, 7) A. Mizrahi, Ed., June 1988.
- MC Glassey, JP Tharakan and PC Chau, "Serum Free Hybridoma Culture and Monoclonal Antibody Production," *Biotechnology and Bioengineering*, 32, 1015 (1988).

Patent Applications:

- "A Radial Flow Hollow Fiber Bioreactor for High Density Mammalian Cell Culture," US Patent Application 1987 [***Applicant: University of California***]
- "Immunoaffinity Purification Process for High Purity Factor IX," US Patent Application, 1989 [***Applicant: American Red Cross***]

REVIEWED PROCEEDINGS PAPERS, ABSTRACTS AND RESEARCH LETTERS:

Environmental Education and Appropriate Technology

- J. Tharakan, "Student-Centered Community-Based Service Learning – The Experience of Engineers Without Borders Howard University Chapter and Opportunities for Incorporation into Regular Curricula," Oral Presentation, 82nd Annual National Technical Association Conference, Washington, DC, September, 2010.
- J. Tharakan, "Student-Centered Community-Based Service Learning: Connecting Scholarship, Teaching and Service," *Faculty Authors Appreciation Keynote Address*, Howard University, Washington, DC, April 2009.
- J. Tharakan, "Appropriate Technology as a Core Engineering Education Outcome," *Proc. 10th UICEE International Conference on Engineering Education*, Bangkok, Thailand, March 2007.
- J. Tharakan, "Appropriate Technologies for Water Use and Conservation in Public Health," *Proc. 2nd Intl. Conf. Appropriate Technology, July 2006*, National University of Science and Technology, Bulawayo, Zimbabwe, pp 87 – 92 (2006).
- J. Tharakan, "Educating Engineers in Appropriate Technology for Development," *Proc. 9th UICEE Ann. Conf. Engineering Education*, Muscat, February 2006.
- J. Tharakan, *et al.*, "Broadening Horizons for our Students: An Elective Seminar Course on Ethics and Philosophy of Appropriate Technology," *Proc. 8th UICEE Ann. Conf. Engineering Education*, Z. Pudlowski (ed), pp. 353, UICEE Press, Melbourne, Australia, 2005.
- J. Tharakan, "Appropriate Technology and Water Availability and Use: Impact on, and Implications for, Land Reform," *Proc. 1st Intl. Conf. Appropriate Technology, National University of Science and Technology*, Bulawayo, Zimbabwe, pp.97-104 (2004).
- Chen, Philip and J. Tharakan, "Leveraging the NASA Administrator's Fellowship Program (NAFP) to Enhance Graduate Chemical Engineering Education at Howard University," *Proceedings of the American Society of Engineering Education Annual National Meeting*, Salt Lake City, UT, Session 2470, Paper 4 (2004).
- J.P. Tharakan, "Teaching Environmental Engineering Students Ethics, Law and Policy,"

Proceedings American Society of Engineering Education 2002 Annual Meeting, Albuquerque, New Mexico, June 2001.

- J. Tharakan, "Incorporating Environmental Ethics, Environmental Justice and Environmental Law and Policy into an Elective course on Fundamentals of Environmental Engineering," in F. Padron (ed) *Proceedings of the XVIII InterAmerican Congress on Chemical Engineering*, CD-ROM Publication, San Juan, PR (1998).

Environmental Biotechnology

- UU Moses and JP Tharakan, "An Investigation of Biotransformation and Bioaccumulation of Polychlorinated Biphenyls (PCBs) in Vermicompost Systems with *Eisenia foetida* Earthworms," *Proceedings, 1st International Conference on Environmental Pollution, Restoration and Management*, Ho Chi Minh City, Vietnam, March , 2010.
- J Tharakan, "Biological Transformation Of Polychlorinated Biphenyls (PCBs) In Hazardous Sludge," *American Society of Microbiology, International Workshop on Bioremediation, BITS-Pilani Goa, India*, January 8, 2010.
- UU Moses and JP Tharakan, "An Investigation of Biotransformation and Bioaccumulation of Polychlorinated Biphenyls (PCBs) in Vermicompost Systems with *Eisenia foetida* Earthworms," *Proceedings, 6th International Chemical Engineering Congress and Exhibition Kish Island FTZ, Iran, To be Presented: November 16 – 20, 2009*.
- J Tharakan, "Potential for Algal Biomass as a Sustainable Resource for Energy Production and Environmental Remediation," *International Conference on Algal Biomass, Resources and Utilization (ICABRU 2009): Krishnamurti Institute of Algology, Chennai, India, July 27th to 30th, 2009*.
- J Tharakan, "Decentralized Renewable Energy Systems as a Core Rural Development Policy," *Proceedings Symposium on Anaerobic Degradation and Renewable Energy Through Microbes*, Birla Institute of Science and Technology, Goa, India, January 13 – 15, 2009.
- Tharakan, J., and Ismail S., "Biological Methods for Waste Treatment and Management," in Tharakan, J. (ed) *Proceedings of the Symposium on Biological Methods of Waste Treatment and Management in South India*, Chennai, India, February 2007.
- Lashley L.A., S. Mischke, D.Zhang, C. Rugh, J. Tharakan and S.K. Dutta, "Microbial Community Structure Analysis of Three PCB Contaminated Soils and Alfaalfa Rhizospheres Using High Throughput 16SrDNA T-RFLP Technology," *Proc.Mid-Atlantic Plant Molecular Biology Conf. Beltsville, MD*, July 2006.
- Tharakan, J., "Biological Transformation of PCBs in Hazardous Sludge," *Proc.Envirotech 2006, Int'l Seminar on Environmental Biotechnology*, Chennai, India, July 2006.
- J. Tharakan, "Application of Microbes and Earthworms for the Biological Remediation of Polychlorinated Biphenyl Contaminated Sludge," *Proc. Jordan International Chemical Engineering Conference, 2005 (JCIEC05)*, Amman, Jordan, September 2005.
- J. Tharakan, D. Tomlinson, A. Addagada and A. Shafagati, "Biotransformation of PCBs in Contaminated Sludge: Use of Novel biological Technologies," *Proc. 1st Intl. Conf.Env.Sci.Tech.*, New Orleans, LA, American Academy of Science Press, January 2005.
- D. Tomlinson, A. Addagada, A. Shafagati and J. Tharakan, "Biotransformation of a SUPERFUND Site's PCB-Contaminated Sludge Using Cycling Anaerobic-Aerobic Bioreactors," *Proceedings of the Fourth International Conference, Remediation of Chlorinated and Recalcitrant Compounds*, Monterey, CA, May 2004.
- J.P.Tharakan, E.Sada, R. Liou and R.C.Chawla, "Transformation of Aroclor by Indigenous

and Inoculated Microbes in Slurry Reactors,” in Alleman and Leason (eds) *In Situ and On Site Bioremediation: The Fifth International Symposium Proceedings*, Batelle, Columbus OH (1999).

- J.P. Tharakan, and J. Gordon, “Effect of Structurally Similar and Non-Aromatic Cosubstrates on the Cometabolic Biotransformation of TNT,” in Suri and Christensen (Eds.) *Proceeding of the 30th Mid-Atlantic Industrial and Hazardous Waste Conference*, Technomic Publishing Co., Lancaster, PA, 142-150 (1998).
- Sada, E., R.C. Liou, J.P. Tharakan, and R.C. Chawla, “Cometabolic Biotransformation of PCBs in Soil-Slurry Reactors Using Terpenes and Biphenyl as Cosubstrates with *C.testosteroni* and *R.erythropolis*,” in Suri and Christensen (Eds.) *Proceeding of the 30th Mid-Atlantic Industrial and Hazardous Waste Conference*, Technomic Publishing Co., Lancaster, PA, 167-176 (1998).
- R.Liou, J.H.Johnson, and J.P.Tharakan, “Anaerobic Dechlorination and Aerobic Biodegradation of PCBs in Soil Columns and Slurries,” in Boardman (Ed.) *Proceedings of the 29th Mid-Atlantic Industrial and Hazardous Waste Conference*, Technomic Publishing Co., Lancaster, PA, 414-423 (1997).
- B.S.Reis, J.P.Tharakan, and R.C. Chawla, “Investigation of the Use of Terpenes as Cosubstrates in the Cometabolic Biodegradation of PCBs,” *Proc. 29th Mid-Atlantic Ind.Haz.Was.Conf. July 1997*, Technomic Publishing Co., Lancaster, PA (1997).
- J.Tharakan, B.Y.Philpot, and R.C. Chawla, “Biphenyl Supported Cometabolic Biodegradation of PCBs by *Commonas testosteroni*,” in G. Boardman (ed) *Proc. 29th Mid-Atlantic Ind.Haz.Was.Conf. July 1997*, Technomic Publishing Co., Lancaster, PA (1997).
- J. Tharakan, G. Welsh and J. Johnson, "Investigation of the Biotransformation of TNT by a *Rhodococcus sp.*" *Proc. 27th Mid-Atlantic Hazardous Waste Symposium*, Technomic Publishing, Lancaster, PA 203-213 (1995).

Protein Separation and Purification

- Tharakan, J.P. and W. Drohan, "Immune Adsorption Chromatography for Protein Purification," *Proceedings of the 17th International Symposium on Blood Transfusion*, Kluwer Academic Publishers, Boston, September, 1992.
- F.A. Highsmith, T. Regan, D.B. Clark, W.N. Drohan and J.P. Tharakan, "Evaluation of CNBr, FMP and Hydrazide Resins for Immunoaffinity Purification of Factor IX," *BioChromatography*, 12 (3), 418 (1992).
- J.P. Tharakan, S.I. Miekka, H.E. Behre, B.D. Kolen, D.M. Gee, W.N. Drohan and D.B. Clark, "Large Scale Process Development for Immunoaffinity Purification of Factor IX," *Throm. Haem.*, 62, 56, (1989).
- J.P. Tharakan, S.I. Miekka, H.E. Behre, B.D. Kolen, D.B. Clark, and W.N. Drohan, "Quantitation of Mouse IgG and Its Removal from Immunoaffinity Purified Human Coagulation Factor IX," *Throm. Haem.*, 62, 214, (1989).

Cell Culture and Bioreactors

- J. Young, D-W. Zhang, J. Tharakan, L. Jenkins, R. Collins, and W. Drohan, "Human Plasma Derived Media Supplement Supports Antibody Production by Hybridoma Cells," *J. of Tissue Culture Methods*, 14 (1), 39, 1992.
- J.P. Tharakan, S.L. Gallagher and P.C. Chau, "Hollow Fiber Bioreactors for Mammalian Cell Culture," in *Upstream Processes: Equipment and Techniques*, (*Advances in Biotechnological*

Processes, 7) A. Mizrahi, Ed., June 1988.

- S.L. Gallagher, J.P. Tharakan, and P.C. Chau, "An Intercalated-Spiral Wound Hollow Fiber Bioreactor for the Culture of Mammalian Cells," *Biotechnology Techniques*, 1, 91 (1987).
- J.P. Tharakan and P.C. Chau, "IgG Production Kinetics in Serum-Free Media," *Biotechnology Letters*, 8, 529 (1986).
- J.P. Tharakan and P.C. Chau, "Serum Free Fed Batch Production of IgM," *Biotechnology Letters*, 8, 457 (1986).
- J.P. Tharakan and P.C. Chau, "Production of IgG and IgM from Murine Hybridomas Adapted to Newborn Calf Serum," *Biotechnology Letters*, 8, 85 (1986).
- J.P. Tharakan and P.C. Chau, "Cell Number Estimation via Fluorescence Measurement," *Biotechnology Letters*, 6, 793 (1984).

VI. Teaching and Advising

Courses Developed And Offered

- Blackboard Use for Engineering and Technology Faculty
- Philosophy and Ethics of Appropriate Technology
- Fundamentals of Hazardous Waste Treatment I: Biological Processes
- Fundamentals of Hazardous Waste Treatment II: Applications of Biological Processes
- Bioprocess Engineering
- Environmental Justice
- Kinetics and Reactor Design – Undergraduate and Graduate
- Introduction to Chemical Engineering Design
- Introduction to Engineering
- Chemical Engineering Material Balances
- Chemical Engineering Energy Balances
- Chemical Engineering Thermodynamics
- Fundamentals of Environmental Engineering

Theses: Primary Advisor

1. Masters Students

- "Bioremediation of PCB Contaminated SUPERFUND Site Media with Anaerobic/Aerobic Cycling Bioreactors," Dave Tomlinson, Thesis Advisor, MSChE May 2005.
- "Vermicomposting for Bioremediation of PCB Contaminated SUPERFUND Site Media," Anuradha Addagada, Thesis Advisor, MSChE December 2004.
- "Design of Poly (Lactide-Co-Ethylene Glycol) Copolymers for Delivery of Bioactive Agents," O. Elizabeth Alabi, Thesis Committee Chair; MSChE May '04.
- "Adsorption of Cu (II), Zn (II) and Pb (II) Ions by a Bioretention Soil Media," J. Bissouma Saquiequois, Thesis Committee Chair; MSChE May '04.
- "Surface Interactions of THP-1 Monocytes/macrophages with Polymethylsiloxane," Sakhile Moyo Ross, Thesis Committee Chair, Defended December 2003.
- "Stimulation of Denitrification During Organic Carbon Oxidation by Heterotrophic Bacteria," Odoe Kanayo, Thesis Committee Chair; MSChE August '04.
- "Increasing Rejection in Nanofiltration Membranes by Ion Implantation," J. Femi Abitoye, Thesis Committee Chair; MSChE August '04.
- "Cometabolic Biotransformation of TNT," Janice Gordon, Thesis Advisor, MSChE September 1997.

- "Cometabolic Biotransformation of PCBs by *Comomonas Testosteroni*, VP 44", Brigitte Philpot, M.E. Civil Engineering, Thesis Advisor, December 1997.

2. Doctoral Students

- Tripte De, "Studies on Synthesis of Biodiesel in Enzyme Fluidised Bed Bioreactors," PhD Dissertation External Examiner for Department of Chemical Engineering, National Institute of Technology, Durgapur, India – May 2017
- Gopan Mukkulath, "Development and Performance Evaluation of an Attached Media Based Biofilter Using Coir Geotextiles for the Treatment of Doemstic and Low Volume Organic Rich Wastewaters," PhD Dissertation External Examiner for Department of Civil Engineering, National Institute of Technology, Calicut, Kerala, India – May 2017

Theses: Non-Primary Advisor

- TiMarra S. Benson, "Solubility Enhancement of Trichloroethylene (TCE) Using Household Co-solvents," Thesis Committee Chair, April 2017.
- Daniel Attoh, "Simultaneous Transformation of Co-contaminant Media of Hexavalent Chromium and Trichloroethylene Using Zero Valent Iron," Thesis Committee Chair, April 2017.

VIII. Service

A. University-Wide

Faculty Adviser, Engineers Without Borders, Howard University Chapter.
 Member, Faculty Senate Council, Howard University
 Member, Steering Committee of the Faculty Senate Council
 Member, Faculty Senate Committee on International Programs and Concerns
 Faculty Senate Grievance Commission
 Environmental Sustainability Council, Howard University

B. College-Wide

Chair, College of Engineering and Architecture, APT Committee
 Member, CEA, Executive Committee

C. Departmental

Chair, Faculty Search Committee, Department of Chemical Engineering
 Chair, Departmental APT Committee
 Chair, Department Engineering Programs and Policies Assessment Committee

D. National and International

- Member, Executive Committee, Board of Scientific Counselors (BOSC) US EPA Office of Research and Development (ORD) (Currently ending final term)
- Member, Safe and Healthy Communities Subcommittee, BOSC, ORD, US EPA.
- Member, Faculty Leadership Council, Engineers Without Borders-USA (Currently in third 3-yr term)
- Editorial Board Member, Int'l Journal of Service Learning in Engineering (Also Reviewer)
- Editorial Board Member Int'l Journal of Quality Assurance in Engineering Education (Also Reviewer)

- Editorial Board Member, Journal of Engineering Education (JEE, Pune, India; Also Paper Reviewer)
- Editorial Board Member, Int'l Journal of Applied Environmental Science and Technology
- Co-Chair, International Network on Appropriate Technology
- Co-Chair, Scientific Review Committee, International Conferences on Appropriate Technology (ICATs)
- Reviewer, Journal of Environment, Development and Sustainability
- Reviewer, Journal of Science and Engineering Ethics
- Reviewer, Journal of Engineering Science and Technology
- Reviewer, Journal of Water Air and Soil Pollution
- Member, American Society of Engineering Education
- Member, American Chemical Society
- Member, Environmental and Occupational Health Consortium, Washington DC

IX. Professional Development Activities

A. Professional Memberships

American Society of Engineering Education

American Institute of Chemical Engineers

American Chemical Society

New York Academy of Sciences

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