

Keshav (K.C) Das, Ph.D, P.E.

Professor of Engineering and
Director, Biorefining and Carbon Cycling Program
Department of Biological and Agricultural Engineering
The University of Georgia (UGA), Athens GA 30602-4435
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AREAS OF INTEREST AND WORK

Research, development, technology-transfer and outreach in the areas of biofuels, biorefinery and carbon cycling, and waste management technologies. Specific technical areas include:

1. Development of microalgae production systems for biofuels. Process engineering for algae-wastewater treatment, CO₂ utilization, and biofuel and biogas production from algae biomass.
2. Anaerobic digestion for methane production and its integration in a biorefinery.
3. Thermochemical conversion of biomass to biofuels and bioproducts; Pyrolysis process engineering and BioOil upgrading.
4. Composting of municipal and industrial organic wastes – Technology development.

EDUCATION/QUALIFICATIONS

Ph.D , Biological and Agric. Engineering	The Ohio State University, Columbus, Ohio, USA.	Sept, 1995
M.S. , Biological and Agric. Engineering	The University of Georgia, Athens, Georgia, USA.	July, 1991
B.S. , Mechanical Engineering	Anna University, Chennai, India	Feb, 1989
Professional Engineer	State of Georgia (USA) Licensure	PE-028678

EMPLOYMENT

<u>Position</u>	<u>Supervisor/Contact</u>	<u>Dates</u>
Professor Biological & Agricultural Engineering University of Georgia, Athens GA 30602 Serving as Director of the University of Georgia's Biorefining and Carbon Cycling Program, and focusing on biomass conversion processes for value addition and new product creation. Technical areas include algae-biomass production and conversion, anaerobic digestion, and thermochemical processing (pyrolysis) for energy co-production with biochar	Prof. E. Dale Threadgill Department Head	6/10- Present

Associate Professor Prof. E. Dale Threadgill 7/05- 6/10
Assistant Professor Department Head 9/98- 6/2005
Biological & Agricultural Engineering
University of Georgia, Athens GA 30602
Conducted research and development of environmentally sustainable technologies for organic waste treatment and conversion of waste to value added products including energy.

Post Doctoral Associate and
Assistant Research Scientist Prof. E. Dale Threadgill 10/95- 9/98
Biological & Agricultural Engineering Department Head
University of Georgia, Athens GA 30602
Established a laboratory and research program in biological treatment of organic wastes to convert wastes to value added products. Identified several priority solid waste issues in industry, and established cooperative interdisciplinary research and demonstration projects.

Research Associate Dr. Harold M. Keener, 9/91-9/95
Agricultural Engineering Department Associate Professor
Ohio State Univ., Columbus, OH 44691
Conducted research on factors affecting airflow in packed beds of high moisture materials (composts). Work included laboratory experiments, theoretical models, and simulation of process kinetics to determine optimal reactor configuration and process control strategies.

Consulting Engineer Dr. Harold M. Keener 8/94-11/94 &
Kurtz Bros. Compost Services Inc. Ms. Annett Berger, Plant manager 7/93-9/93
City of Akron Composting Facility
2677 Riverview Rd., Akron, OH
Developed a continuous moisture monitoring protocol for a 80 dry t/d commercial biosolids composting facility in Akron, Ohio. Process data analysis and computer implementation of the protocol were performed.

Research Assistant Dr. Mark D. Evans 9/89-8/91
Biological & Agricultural Engineering Associate Professor
University of Georgia, Athens, GA 30602
Developed a system for detecting fertility of hatching eggs during incubation using image processing and neural network algorithms for pattern recognition.

TEACHING

ENGR 3540 Physical Unit Operations: Senior level course in fundamental engineering process design. Course covers various aspects of food, agricultural, and biological materials processing for the manufacture of products. Students are taught the design and selection of unit operation components for engineering processes. [Spring semester, annually since 1999]

ENGR 4440 Environmental Engineering I: Senior level course in fundamentals of environmental engineering issues, treatment technologies, regulations and related matters.

Course covers water and wastewater treatment, air pollution control technologies, and solid waste management. [Fall semester, annually since 2004]

AESC 3126 Fertility and pest management in organic agriculture. 3 Credit hour interdisciplinary course dealing with organic farming. Co-teaching with three other instructors of record [Fall semester, annually since 2007]

ENGR 8990/FORS8020 Opportunities in the Biomass-Based Economy: Seminar course on various aspects of biomass generation, processing, product development, etc. Co-taught with Warnell School of Forest Resources and Department of Microbiology [Spring semester, annually 2007-2010]

FRES 1010 Overcoming our addiction to oil -The transition to a renewable economy: Freshman Seminar on topics relating to the biobased energy and economy [Fall 2008; Co-taught with Mr. Dan Geller].

ENGR 8580 Compost Engineering: Graduate independent study course on the design and analyses of composting process and engineered systems [Fall 2008; Co-taught with Dr. Bill Tollner].

ENGR 4980 Special Topics in Engineering: Alternate energy system analysis and design Senior level course in design of a solar energy based refrigeration system for the milk industry in Uganda. Student was guided through the design process for various unit operations in the processing system. [Summer, 2002]

AAEC 4990 Special Topics in Agricultural and Applied Economics: Senior level course guiding student in the design and economic analysis of a bio-stabilization process for converting wood wastes to a value added product. Provided guidance on independent reading, laboratory project, data analysis, etc. [Fall 2002]

Compost Operator Training Workshop: A 2-day workshop providing attendees an exposure to the physical, chemical and biological aspects of composting as a waste treatment process. Coverage focuses on design, operation and management of large-scale organic waste composting facilities [Annually since 1996 – 2008]

PUBLICATIONS

Peer-reviewed Journal Publications (Total **86**)

1. Jena, U. and **K.C. Das**. 2011. Comparative evaluation of thermochemical liquefaction and pyrolysis for BioOil production from microalgae. Energy & Fuels [In Press] **DOI:** 10.1021/ef201373m. [Student advisee's paper]

2. Hunt, R.W., S. Chinnasamy, and **K.C. Das**. 2011. The effect of naphthalene-acetic acid on biomass productivity and chlorophyll content of green algae, coccolithophore, diatom and cyanobacteria cultures. *Applied Biochemistry and Biotechnology*, 164(8):1350-1365. [Student advisee's paper]
3. Novak, J.M., I. Lima, B. Xing, J.W. Gaskin, C. Steiner, **K.C. Das**, M. Ahmedna, D. Rehrach, D.W. Watts, W.J. Busscher, and H. Schomberg. 2011. Development of designer biochar to remediate specific chemical and physical aspects of degraded soils: influence of biochars on availability of fixed N fractions. *Journal of Environmental Quality* [In Press]
4. Vandenbrink, J.P., R.N. Hilten, **K.C. Das**, A.H. Paterson, and F.A. Feltus. 2011. Analysis of crystalline index and hydrolysis rates in the bioenergy crop *Sorghum bicolor*. *Bioenergy Research* [In Press] DOI: 10.1007/s12155-011-9146-2.
5. Vishwanathan, T., S. Mani, **K.C. Das**, S. Chinnasamy, and A. Bhatnagar. 2011. Thin layer drying kinetics and chemical composition of microalgae consortium. *Transactions of the ASABE* [In Press]
6. Hilten, R., R. Speir, J. Kastner and **K.C. Das**. 2011. Production of gasoline-like fuel via catalytic pyrolysis of acidulated peanut oil soap stock. *Bioresource Technology* [In Press] [Student advisee's paper]
7. Singh, M., D.L. Reynolds, and **K.C. Das**. 2011. Microalgal system for treatment of effluent from poultry litter anaerobic digestion. *Bioresource Technology*, 102(23):10841-10848. [Post-doctoral advisee's paper]
8. Steiner, C., N.D. Melear, K. Harris, and **K.C. Das**. 2011. Biochar as bulking agent for poultry litter composting. *Carbon Management*, 2(3):227-230. [Post-doctoral advisee's paper]
9. Putt, R., M. Singh and **K.C. Das**. 2011. An efficient system for carbonation of high-rate algae pond water to enhance CO₂ mass transfer. *Bioresource Technology*, 102(3):3240-45
10. Garcia, S., K. Jangid, W.B. Whitman, and **K.C. Das**. 2011. Transition of microbial communities during the adaptation of anaerobic digestion of carrot waste. *Bioresource Technology*, 102(15):7249-7256. [Student advisee's paper]
11. Doydora, S., M. Cabrera *, **K.C. Das**, J. Gaskin, L. Sonon, and W. Miller. 2011. Release of nitrogen and phosphorus from poultry litter amended with acidified biochar. *IJERPH Special issue: Soil Pollution – Prevention and Mitigation*, 8(5):1491-1502. [Student advisee's paper]
12. Jena, U., **K.C. Das** and J.R. Kastner. 2011. Effect of operating conditions of thermochemical liquefaction on biocrude production from *Spirulina platensis*. *Bioresource Technology*, 102, 6221-6229. [Student advisee's paper]
13. Bhatnagar, A., S. Chinnasamy, M. Singh and **K.C. Das**. 2010. Renewable biomass production by mixotrophic algae in the presence of various carbon sources and wastewater. *Applied Energy*, 88(10):3425-3431. [Post-doctoral advisee's paper]

14. Jena, U., N. Vaidyanathan, S. Chinnasamy, and **K.C. Das**. 2010. Evaluation of microalgae cultivation using recovered aqueous co-product from thermochemical liquefaction of algal biomass. *Bioresource Technology*, 102(3):3380-87. [Student advisee's paper]
15. **Das, K.C.**, K. Singh, B.P. Bibens, R. Hilten, S.A. Baker, W.D. Greene and J.D. Peterson. 2010. Pyrolysis characteristics of forest residues obtained from different harvesting methods. *Applied Engineering in Agriculture*, 21(1):107-113.
16. Tollner, E.W., P.A. Annis, and **K.C. Das**. 2010. Evaluation of strength properties of polypropylene-based polymers in simulated landfill and oven conditions. *Journal of Environmental Engineering*, 137(4):291-296.
17. Liesh, A.M., S.L. Weyers, J.W. Gaskin and **K.C. Das**. 2010. Impact of two different Biochars on earthworm growth and survival. *Annals of Environmental Science*, 4:1-9.
18. Hunt, R.W., S. Chinnasamy, A. Bhatnagar, and **K.C. Das**. 2010. Effect of biochemical stimulants on biomass productivity and metabolite content of the microalga, *Chlorella sorokiniana*. *Applied Biochemistry and Biotechnology*, 162(8):2400-2414. [Student advisee's paper]
19. Singh, K., M. Risse, J. Worley, **K. C. Das**, and S. Thompson. 2010. Effect of fractionation and pyrolysis on fuel properties of poultry litter. *Journal of Air and Waste Management*, 60(7):875-883. [Student advisee's paper]
20. Singh, K., K. Lee, J. Worley, L.M. Risse and **K.C. Das**. 2010. Anaerobic digestion of poultry litter – a Review. *Applied Engineering in Agriculture*, 26(4):677-688. [Student advisee's paper]
21. Garcia-Perez, M., T.T. Adams, J.W. Goodrum, **K.C. Das**, and D.P. Geller. 2010. DSC studies to evaluate the impact of bio-oil on cold flow properties and oxidation stability of biodiesel. *Bioresource Technology*, 101(15):6219-24. [Post-doctoral advisee's paper]
22. Chinnasamy, S., A. Bhatnagar, R. Claxton and **K.C. Das**. 2010. Biomass and bioenergy production potential of microalgae consortium in open and closed bioreactors using untreated carpet industry effluent as growth medium. *Bioresource Technology*, 101(17):6751-60. [Post-doctoral advisee's paper]
23. Hilten, R., R. Speir, J.R. Kastner, and **K.C. Das**. 2010. Production of fuel from the catalytic cracking of pyrolyzed poultry DAF skimmings. *Journal of Analytical and Applied Pyrolysis* 88(1):30-38. [Student advisee's paper]
24. Hilten, R. and **K.C. Das**. 2010. Comparison of three accelerated aging procedures to assess bio-oil stability. *Fuel* 89(10): 2741-2749. [Student advisee's paper]
25. Steiner, C., **K.C. Das**, N.D. Melear, and D. Lakly. 2010. Reducing nitrogen losses during poultry litter composting using biochar. *Journal of Environmental Quality*, 39(4):1236-42. [Post-doctoral advisee's paper]
26. Chinnasamy, S., A. Bhatnagar, R.W. Hunt, and **K.C. Das**. 2010. Microalgae cultivation in wastewater dominated by carpet mill effluents for biofuel applications. *Bioresource Technology* 101(9):3097-3105. [Post-doctoral advisee's paper]

27. Bhatnagar, A., M. Bhatnagar, S. Chinnasamy and **K.C. Das**. 2010. *Chlorella minutissima*- A promising fuel alga for cultivation in municipal wastewaters. *Applied Biochemistry and Biotechnology* 161(8):523-536. [Post-doctoral advisee's paper]
28. Gaskin, J.W., R.A. Speir, D. Lee, K. Harris, L.A. Morris, **K.C. Das** and D. Fisher. 2010. Effect of peanut hull and pine chip biochar on soil nutrients, corn nutrient status and yield. *Agronomy Journal*, 102, 623-633.
29. **Das, K. C.**, K. Singh, R. Adolphson, B. Hawkins, R. Oglesby, D. Lakly, and D. Day. 2010. Steam pyrolysis and catalytic steam reforming of biomass for hydrogen and biochar production. *Applied Engineering in Agriculture* 26(1):137-146.
30. Hilten, R., B. Bibens, J.R. Kastner and **K.C. Das**. 2010. In-line esterification of pyrolysis vapor with ethanol improves bio-oil quality. *Energy & Fuel* 24(1):673-682. [Student advisee's paper]
31. Novak, J.M., I. Lima, B. Xing, J.W. Gaskin, C. Steiner, **K.C. Das**, M. Ahmedna, D. Rehrah, D.W. Watts, W.J. Busscher, and H. Schomber. 2009. Characterization of designer biochar produced at different temperatures and their effects on a loamy sand. *Annals of Environmental Science*, 3, 195-206.
32. Hunt, R.W., A. Zavalin, A. Bhatnagar, S. Chinnasamy and **K.C. Das**. 2009. Electromagnetic biostimulation of living cultures for biotechnology, biofuel, and bioenergy applications. *International Journal of Molecular Science* 10, 4515-4558. [Student advisee's paper]
33. Chinnasamy, S., B. Ramakrishnan, A. Bhatnagar, S.K. Goyal and **K.C. Das**. 2009. Carbon and nitrogen fixation under elevated levels of CO₂ and temperature by *Anabena fertilissima*. *Journal of Freshwater Ecology* 24(4):587-596. [Post-doctoral advisee's paper]
34. Singh, K., M. Risse, J. Worley, **K. C. Das**, and S. Thompson. 2009. Studying compaction behavior of fractionated poultry litter and use of pyrolysis condensate as a binder during pelletizing. *Transactions of ASABE* 52(3):949-956. [Student advisee's paper]
35. Smith, J.S., M. Garcia-Perez, and **K.C. Das**. 2009. Producing fuel and specialty chemicals from the slow pyrolysis of poultry DAF skimmings. *Journal for Analytical and Applied Pyrolysis* 86(1):115-121 [Student advisee's paper]
36. Chinnasamy, S., B. Ramakrishnan, A. Bhatnagar, and **K.C. Das**. 2009. Biomass production potential of a wastewater alga *Chlorella vulgaris* ARC 1 under elevated levels of CO₂ and temperature. *International Journal of Molecular Sciences* 10(2):518-532. [Post-doctoral advisee's paper]
37. Kastner, J.R., J. Miller, P. Kolar, and **K.C. Das**. 2009. Catalytic ozonation of ammonia using biomass char and wood fly ash. *Chemosphere* 75, 739-744.
38. Gaskin, J.W., C. Steiner, K.R. Harris, **K.C. Das**, and B. Bibens. 2008. The effect of low-temperature pyrolysis conditions on the characteristics of poultry litter, peanut hull, and pine chip biochars for agricultural use. *Transactions of the ASABE* 51(6):2061-2069

39. Singh, K., **K.C. Das**, M. Risse, and J. Worley. 2009. Determination of Composition of Cellulose and Lignin Mixture using Thermo Gravimetric Analysis (TGA). *Journal of Energy Resource Technology* 131(2): DOI: 10.1115/1.3120349 [Student advisee's paper]
40. Kastner .J.R, J. Miller, and **K.C. Das**. 2009. Pyrolysis conditions and ozone oxidation effects on ammonia adsorption in biomass generated chars. *Journal of Hazardous Materials*, 164(2-3):1420-1427.
41. **Das, K.C.**, M. Garcia-Perez, B. Bibens, and N.D. Melear. 2008. Slow pyrolysis of poultry litter and pine woody biomass -impact of chars and BioOils on microbial growth. *Journal of Environmental Science and Health -Part A*, 43(7):714-724.
42. **Das, K.C.**, and J.T. Kirkland. 2008. Quantification of water extractable contaminants from food waste and biosolids blends at different stages of composting. *Compost Science and Utilization*, 16(3):200-206.
43. Singh, K., L.M. Risse, J. Worley, **K.C. Das**, and S. Thompson. 2008. Effect of fractionation on fuel properties of poultry litter. *Applied Engineering in Agriculture* 24(4): 383-388. [Student advisee's paper] [ASABE Graduate Student Research Award Winning Paper. 2007]
44. Garcia-Nunez, J.A., M. Garcia-Perez, and **K.C. Das**. 2008. Determination of kinetic parameters of thermal degradation of palm oil mill byproducts using thermogravimetric analysis and differential scanning calorimetry. *Transactions of the ASABE*, 51(2):547-557. [Student advisee's paper]
45. **Das, K.C.** 2008. Co-composting of alkaline tissue digester effluent with yard trimmings. *Waste Management*, 28:1785-1790.
46. Steiner, C., **K.C. Das**, M. Garcia, B. Forster, and W. Zech. 2008. Charcoal and smoke extract stimulate the soil microbial community in a highly weathered xanthic ferralsol. *Pedobiologia*, 51(5-6):359-366.
47. **Das, K.C.**, and K. Xia. 2007. Transformation of 4-nonylphenol isomers during biosolids composting. *Chemosphere*, 70, 761-768.
48. Garcia-Perez, M., T.T. Adams, J.W. Goodrum, D.P. Geller, and **K.C. Das**. 2007. Production and fuel properties of pine chip biooil/biodiesel blends. *Energy and Fuels*, 21 (4): 2363-2372. [Post-doctoral advisee's paper]
49. **Das, K.C.**, P.A. Annis, E.W. Tollner, and S. Dudka. 2007. [July-Dec 2006]. Technical and economic aspects of utilizing fibrous wool composts in horticulture. *Journal of Applied Horticulture*, 8(2):165-169.
50. Ding, Y., **K.C. Das**, W.B. Whitman, and J.R. Kastner. 2006. Enhanced biofiltration of hydrogen sulfide in the presence of methanol and resultant bacterial diversity. *Transactions of the ASABE*, 49(6):2051-2059. [Student advisee's paper] [This paper won an international best paper award within the American Society of Agricultural and Biological Engineers]

51. Kastner, J.R., and **K.C. Das**, 2005. Comparison of chemical wet scrubbers and biofiltration for VOC control using GC/MS techniques and kinetic analysis. *Journal of Chemical Technology and Biotechnology*, 80, 1170-1179.
52. Kastner, J.R., Q. Buquoi, R Ganagavaram, and **K.C. Das**. 2005. Catalytic Ozonation of Gaseous Reduced Sulfur Compounds Using Wood Fly Ash. *Environmental Science and Technology*, 39(6):1835-1842.
53. Xia, K., A. Bhandari, **K.C. Das**, and G.D. Pillar. 2005. Occurrences and Fate of Pharmaceuticals and Personal Care Products (PPCPs) in Biosolids. *Journal of Environmental Quality*, 34, 91-105.
54. Tollner, E.W., and **K.C. Das**. 2004. Predicting runoff from a yard waste windrow-composting pad. *Transactions of the ASAE*, 47(6):1953-1961.
55. Kastner, J.R., **K.C. Das**, and B. Crompton. 2004. Kinetics of Ammonia Removal in a Pilot Scale Biofilter. *Transactions of the ASAE*, 47(5):1-12
56. Kastner, J.R., **K.C. Das**, J.Q. Buquoi, and N.D. Melear. 2003. Low temperature catalytic oxidation of hydrogen sulfide and methanethiol using wood and coal fly ash. *Environmental Science and Technology*, 37(11): 2568-2574.
57. Kastner J.R., **K.C. Das**, C. Hu, and R. McClendon. 2003. Effect of pH and temperature on the kinetics of odor oxidation using chlorine dioxide. *Journal of the Air and Waste Management*, 53, 1218-1224.
58. Liang, C., **K.C. Das**, and R. McClendon. 2003. Prediction of microbial activity during biosolids composting using artificial neural networks. *Transactions of the ASAE*, 46(6):1713-1719. [Student advisee's paper]
59. Liang, C., **K.C. Das**, and R. McClendon. 2003. The influence of temperature and moisture content regimes on the aerobic microbial activity of a biosolids composting blend. *Bioresource Technology*, 86(2):131-137. [Student advisee's paper]
60. **Das, K.C.**, E.W. Tollner, and M.A. Eiteman. 2003. Comparison of synthetic and natural bulking agents in food waste composting. *Compost Science and Utilization* 11(1):27-35.
61. **Das, K.C.**, N.D. Melear, and J.R. Kastner. 2003. Influence of ash amendment on odor emissions and aerobic biodegradation of biosolids mixes. *Transactions of the ASAE*, 46(4):1185-1191.
62. **Das, K.C.**, and E.W. Tollner. 2003. Comparison between composting of untreated and anaerobically treated paper mill sludges. *Transactions of the ASAE*, 46(2):475-481.
63. **Das, K.C.**, E.W. Tollner, and T.G. Tornabene. 2002. Windrow composting of paper mill byproducts: Scale up and seasonal effects. *Compost Science and Utilization* 10(4):347-355.
64. **Das, K.C.**, M. Minkara, and N. Melear. 2002. Composting process for the stabilization of an industrial fermentation biomass byproduct. *Transactions of the ASAE* 45(5):1703-1708.
65. Kastner, J.R., **K.C. Das**, and N. Melear. 2002. Catalytic oxidation of gaseous reduced sulfur compounds using coal fly ash. *Journal of Hazardous Materials*, 95(1-2):81-90.

66. **Das, K.C.**, M. Minkara, N. Melear, and E. Tollner. 2002. Effect of poultry litter amendment on hatchery waste composting. *Journal of Applied Poultry Research*, 11:282-290.
67. **Das, K.C.**, M.Y. Minkara, J.R. Kastner, and S.M. Hassan. 2002. Reduction of volatile organic compounds and stabilization of industrial biosolids through composting. *Journal of Solid Waste Technology and Management*, 28(2):71-78.
68. **Das, K.C.**, M.C. Smith, D.K. Gattie, and D.D. Hale Boothe. 2002. Stability and quality of municipal solid waste compost from a landfill aerobic bioreduction process. *Advances in Environmental Research*, 6(4):401-409.
69. Kastner, J.R., and **K.C. Das**. 2002. Wet scrubber analysis of volatile organic compound removal in the rendering industry. *Journal of Air and Waste Management*, 52:174-185.
70. Shuman, L.M., S. Dudka, and **K. C. Das**. 2002. Cadmium forms and plant availability in a compost amended soil. *Communications in Soils Science and Plant Analysis* 33:737-748.
71. **Das, K.C.**, J.D. Governo, and S.A. Thompson. 2001. Computer tool for composting process design and cost estimation. *Applied Engineering in Agriculture*, 17(5):711-718.
72. **Das, K.C.**, E.W. Tollner, and T.G. Tornabene. 2001. Composting byproducts from a bleached-kraft pulping process: effect of type and amount of nitrogen amendments. *Compost Science and Utilization*, 9(3):256-266.
73. Hale Boothe, D.D., M.C. Smith, D.K. Gattie, and **K.C. Das**. 2001. Characterization of microbial populations in landfill leachate and bulk samples during aerobic bioreduction. *Advances in Environmental Research*, 5, 285-294.
74. Shuman, L.M., S. Dudka, and **K. C. Das**. 2001. Zinc forms and plant availability in a compost amended soil. *Water, Air, and Soil Pollution*, 128:1-11.
75. Worley, J.W., and **K.C. Das**. 2000. Swine manure solids separation and composting using alum. *Applied Engineering in Agriculture*, 16(5):555-561.
76. Smith, M.C., D.K. Gattie, D.H. Boothe, and **K.C. Das**. 2000. Enhancing aerobic bioreduction under controlled conditions in a municipal solid waste landfill through use of air injection and water recirculation. *Advances in Environmental Research*, 3(4):459-471.
77. McGuckin, R.L., M.A. Eiteman, and **K.C. Das**. 1999. Pressure drop through raw food waste compost containing synthetic bulking agents. *Journal of Agricultural Engineering Research*, 72, 375-384. [Student advisee's paper]
78. Ndegwa, P.M., S.A. Thompson, and **K.C. Das**. 1999. Effects of stocking density and feeding rate on vermicomposting of biosolids. *BioResource Technology*, 71, 5-12.
79. Tornabene, T.G., M. Ganta, **K.C. Das**, and F.D. Worley. 1999. Anaerobic capacity of solid pulp and paper mill waste. *Journal of Solid Waste Technology and Management*, 26(3-4):161-167.
80. Mohee, R., R.K. White, and **K.C. Das**. 1998. Simulation model for composting cellulosic (bagasse) substrates. *Compost Science and Utilization*, 6(2):82-92.

81. Keener, H.M., D.L. Elwell, **K.C. Das**, and R.C. Hansen. 1997. Specifying design/operation of composting systems using pilot scale data. *Applied Engineering in Agriculture*, 13(6):767-772.
82. **Das, K.C.**, and H.M. Keener. 1997. Numerical model for the dynamic simulation of a large scale composting system. *Transactions of the ASAE*, 40(4):1179-1189. [Dissertation work]
83. **Das, K.C.**, and H.M. Keener. 1997. Moisture effect on compaction and permeability in composts. *Journal of Environmental Engineering*, 123(3):275-281. [Dissertation work]
84. Keener, H.M., D.L. Elwell, **K.C. Das**, and R.C. Hansen. 1996. Remix scheduling during composting based on moisture control. *Transactions of the ASAE*, 39(5):1839-1845.
85. **Das, K.C.**, and M.D. Evans. 1992. Detecting fertility of hatching eggs using machine vision II: Neural network classifiers. *Transactions of the ASAE*, 35(6):2035-2041. [Master's thesis work]
86. **Das, K.C.**, and M.D. Evans. 1992. Detecting fertility of hatching eggs using machine vision I: Histogram characterization method. *Transactions of the ASAE*, 35(4):1335-1341. [Master's thesis work]

Proceedings/Books/Miscellaneous Publications (Total 11)

1. **Das, K.C.** 2008. Review of biorefinery concepts and opportunities in the palm oil sector. [Revision del concepto de biorefineria y oportunidades en el sector palmero]. In: *Tertulias Palmeras, Document 93, Biomasa, una oportunidad mas para la agroindustria de la palma de aceite en Colombia*. Bogota, DC, 29 July 2008. Published by Fedepalma, Carrera 10A, No. 69A-44, Bogota, Colombia.
2. Gaskin, J, **K.C. Das**, A. Tasistro, L. Sonon, K. Harris, and B. Hawkins. 2008. Characterization of biochar for agricultural use in the soils of the southeastern United States. In: *Terra Preta Nova: A Tribute to Wim Sombroek*. William Woods (Ed.), Springer Publishers.
3. Mudhoo, A., V.K. Garg, R. Mohee, **K.C. Das**, and G.D. Unmar (Eds.) Special issue on "Treatment processes for mixed organic wastes, residual biosolids and wastewater", *International Journal of Environment and Waste Management* (2008).
4. Baker, S.A., W.D. Greene, **K.C. Das** and J. Peterson. 2008. Logging residues show promise for biofuel production. *Forest Resources Association, Rockville MD 20852, Technical Release 08-R-6* [Peer reviewed technical notes].
5. Garcia-Perez, M., **K.C. Das**, T.T. Adams. 2006. Thermochemical conversion of biomass in biorefineries. Book Chapter (In Press), In: *Charcoal and biomass technologies for energy and agriculture*, Translated to Portuguese and scheduled for publication in Brazil.
6. **Das, K.C.** 2005. Book Review - A. Pandey, Editor, *Concise Encyclopedia of Bioresource Technology*, Food Products Press, Binghamton, NY, USA. *Agricultural Systems*, 85(2):206-207.

7. Granberry, D.M., P.J. Germishuizen, J.C. Diaz, and **K.C. Das**. 2003. Passive composting fails food safety test. Georgia Vegetable Extension-Research Report, The University of Georgia CAES, Cooperative Research-Extension Publication No. 5-2003.
8. **Das, K.C.**, L.M. Risse and W.R. McLaurin. (Eds). 1998-2002 [Updated and published annually]. Compost facility operators guide. The University of Georgia compost facility operators training workshop. Misc engineering publication no. ENG98-006. The University of Georgia cooperative extension service.
9. Kastner, J.R., **K.C. Das**, V.A. Nzungu, J. Dowd, and J. Fields. 2001. In-Situ Bioremediation of Perchlorate-Contaminated Soils. Bioremediation of Inorganic Compounds: In: In situ and on-site bioremediation (Eds. Leason, A. and V.S. Magar), 6(9). Battelle Press, Columbus, OH.
10. **Das, K.C.** 2000. Odor related issues in commercial composting. Workshop handbook and reference guide. 45 pp. [Available on request. Biological and Agricultural Engineering].
11. **Das, K.C.** and E.F. Graves. (Eds). 1998. Composting in the Southeast. Proceedings of the Composting in the Southeast-Conference and Expo. Athens, GA, Sept. 9-11, 1998. Published by The University of Georgia, Athens, Georgia.

Presentations – Conferences and Trade Journal Papers (Total 145)

1. Mattos, E., R. Hunt, M. van Iersel, M. Cabrera, and K.C. Das. 2011. Changes in chlorophyll fluorescence parameters in different growth stages of *Chlorella sorokiniana*. ABO Summit, Minneapolis, 25-27 Oct 2011.
2. **Das, K.C.**, S. Chinnasamy, G. Hawkins and C. Steiner. 2009. Organic waste management - Bioproducts and Biofuel Opportunities. AgriINTEX International Conference - Next Generation of Indian Agriculture, Coimbatore, India, October 2-5, 2009 [International Invited Keynote Presentation]
3. Risse, L. M., K. Singh, **K.C. Das**, J. Worley and S. Thompson, 2010. Value Added Poultry Litter Products through Fractionation and Pyrolysis. Poster abstract for the National Animal and Poultry Waste Management Symposium, Greensboro, NC, September 26-28, 2010.
4. **Das, K.C.**, M. Singh, M. Garcia-Perez, and S. Chinnasamy. 2010. Biorefinery Technologies – an overview. International Conference on Bioengineering, SRM University, Chennai, India, July 29-31 [Presentation and Proceedings]
5. Chinnasamy, S., M. Singh, and **K.C. Das**. 2010. Microalgae technology for integrated waste management with bioenergy production. International Conference on Bioengineering, SRM University, Chennai, India, July 29-31 [Presentation and Proceedings]
6. Almeida, A., **K.C. Das**, and N. Balagurusamy. 2010. Biochemical methane potential of desert plants: *Aloe vera* and *Opuntia robusta* in Comarca Lagunera, Mexico. Proceedings of the 3rd Intl Symposium on Energy from Biomass and Waste, Venice, Italy, Nov 8-11.

7. Alvarado, A., S. Chinnasamy, **K.C. Das**, and N. Balagurusamy. 2010. Opportunities for co-digestion of industrial and agricultural substrates for anaerobic digestion. Proceedings of the 3rd Intl Symposium on Energy from Biomass and Waste, Venice, Italy, Nov 8-11.
8. Steiner, C., **K.C. Das**, N. Melear, J. Gaskin, K. Harris, and D. Lakly. 2010. Biochar use in the poultry industry. 3rd Intl Biochar Conference, Rio de Janeiro, Brazil, Sept 12-15.
9. **Das, K.C.**, M. Singh, M. Garcia-Perez, and S. Chinnasamy. 2010. Biorefinery technologies – an overview. Proceedings of the International Conference on Bioengineering (ICBE 2010), SRM University, Kattankulathur, Tamilnadu 603203, India, July 29-31.
10. Viswanathan, T., S. Mani, S. Chinnasamy, **K.C. Das**. 2010. Effect of cell rupturing methods on the drying characteristics of microalgae. Society of Industry Microbiology, 32nd Symposium on Biotechnology for Fuels and Chemicals, Clearwater beach FL, April 19-22.
11. Mani, S., **K.C. Das**, and J.R. Kastner. 2009. Biomass Torrefaction – A promising method for thermochemical conversion technology. IEA Bioenergy Conference, Vancouver, BC, Canada, Aug. 23-26, 2009.
12. Harris, K., J.W. Gaskin, H. Schomberg, D. Fisher, C. Steiner, **K.C. Das**. 2009. Biochar effects on carbon and nitrogen in a loamy sand soil. ASA-CSSA-SSSA International Annual Meeting, Pittsburgh, PA. Nov 1-5, 2009.
13. Novak, J., W. J. Busscher, H. Schomberg, I. Lima, J.H. Loughrin, D. W. Watts, J. Gaskins, **K. C. Das**, C. Steiner, M. Ahmedna, D. Rehrach, S. Bae, and B. Xing. 2009. Development of Designer Biochar to remediate specific chemical and physical aspects of degraded soils. North American Biochar Conference, Boulder CO. University of Colorado at Boulder, Center for Energy and Environmental Security. August 9-12.
14. Steiner, C., J. Gaskin, K. Harris, and **K.C. Das**. 2009. The Influence of crop residues and carbonized crop residues on nitrogen dynamics. North American Biochar Conference, Boulder CO. University of Colorado at Boulder, Center for Energy and Environmental Security. August 9-12.
15. Steiner, C., K. Harris, J. Gaskin, and **K.C. Das**. 2009. Fertilizing efficiency of Carbonized chicken litter. North American Biochar Conference, Boulder CO. University of Colorado at Boulder, Center for Energy and Environmental Security. August 9-12.
16. Jena, U., and **K.C. Das**. 2009. State of the art thermochemical liquefaction of biomass for biofuel generation. Annual meeting of American Society Agricultural and Biological Engineering, Reno, Nevada, USA. June 20-24.
17. **Das, K.C.**, Christian Arturo Espino Lopez, Gerardo Martinez Castro, and Senthil Chinnasamy. 2009. Bioenergy production from animal wastes- an eco-friendly approach for improving environmental sustainability of livestock industry in Laguna Region, Mexico. 12th Annual Conference on the Americas, February 6-7.
18. Ames, Glenn C., Martha Allexsah-Snyder, and **K.C. Das**. 2009. Training, Internships, Exchanges, and Scholarships (TIES) Initiative: A Mexico-US Higher Education Partnership in Human Capital Development. 12th Annual Conference on the Americas, February 6-7.

19. Steiner, C., J. Gaskin, K. Harris, and **K.C. Das**. 2009. The Influence of crop residues and carbonized crop residues on nitrogen dynamics. North American Biochar Conference, Boulder CO. University of Colorado at Boulder, Center for Energy and Environmental Security. August 9-12.
20. Steiner, C., K. Harris, J. Gaskin, and **K.C. Das**. 2009. Fertilizing efficiency of Carbonized chicken litter. North American Biochar Conference, Boulder CO. University of Colorado at Boulder, Center for Energy and Environmental Security. August 9-12.
21. Jena, U., and **K.C. Das**. 2009. State of the art thermochemical liquefaction of biomass for biofuel generation. Annual meeting of American Society Agricultural and Biological Engineering, Reno, Nevada, USA. June 20-24.
22. **Das, K.C.**, Christian Arturo Espino Lopez, Gerardo Martinez Castro, and Senthil Chinnasamy. 2009. Bioenergy production from animal wastes- an eco-friendly approach for improving environmental sustainability of livestock industry in Laguna Region, Mexico. 12th Annual Conference on the Americas, February 6-7.
23. Ames, Glenn C., Martha Allexaht-Snyder, and **K.C. Das**. 2009. Training, Internships, Exchanges, and Scholarships (TIES) Initiative: A Mexico-US Higher Education Partnership in Human Capital Development. 12th Annual Conference on the Americas, February 6-7.
24. Singh, K., M. Risse, J. Worley, **K. C. Das**, and S. Thompson. 2008. Effect of fractionation and pyrolysis on fuel properties of poultry litter. Peer reviewed proceedings. Air and Waste Management Annual Meeting and Expo, Portland, Oregon. [Nominated for Young Professional Best Paper Award 2008 Air and Waste Management Association]
25. Singh, K., E. W. Tollner, S. Mani, L. M. Risse, **K. C. Das**, and John Worley. 2008. Transforming solid wastes into high quality bioenergy products: Entropy analysis. ASME Paper No. 1924. Peer reviewed proceedings, North American Waste to Energy Conference (NAWTEC-16), Philadelphia, PA. May 19-21.
26. Singh K., E. W. Tollner, S. Mani, L. M. Risse, **K. C. Das**, and J. Worley. 2008. Emergy analysis of a pyrolysis process. Peer review proceedings, Fifth Biennial Energy Research Conference, University of Florida, Gainesville, Florida, January 31 - February 2.
27. Jena, U., S. Chinnasamy, S. Mani, and **K. C. Das**. 2008. Thermochemical liquefaction of microalgae into biofuels. Annual Environmental Conference, Atlanta, Georgia, October 9.
28. Jena, U., and **K. C. Das**. 2008. Kinetic study of catalytic decomposition of paper mill sludge, paulownia wood waste and micro algae using thermo gravimetric analyzer. Annual meeting of American Society Agricultural and Biological Engineering. Providence, Rhode Island, USA. June 29- July 2.
29. Jena, U., S. Chinnasamy, and **K. C. Das**. 2008. Transformation of algae into biofuel and chemicals. Annual meeting of Georgia section of American Society Agricultural and Biological Engineering, Georgia section of Soil and Water Conservation Engineering, Georgia section of International Erosion Control Engineering, Athens, GA, USA. June 4-6.
30. Jena, U., and **K. C. Das**. 2008. Gasification study of paper mill sludge, paulownia wood waste and micro algae using thermo gravimetric analyzer. Annual meeting of Institute of Biological Engineering, Chapel Hill, NC, USA. March 6-8.

31. **Das, K.C.**, B. Bibens, J.R. Kastner, and R.Hilten. 2008. Biorefinery and Carbon Cycling – Producing biochar along with biofuels. Paper presented at the 2008 Conference of the International Biochar Initiative – Biochar, Sustainability and Security in a Changing Climate, Sept 8-10, Newcastle, United Kingdom.
32. **Das, K.C.** 2008. Pyrolysis based biorefinery – Multiple co-products and their utilization. Beneficial use of industrial materials summit. Organized by the United States Environmental Protection Agency and the United States Department of Agriculture, Denver, Colorado, USA, March 31.
33. Singh, K., M. Risse, J. Worley, **K. C. Das**, and S. Thompson. 2008. Effect of fractionation and pyrolysis on fuel properties of poultry litter. Peer reviewed proceedings. Air and Waste Management Annual Meeting and Expo, Portland, Oregon. [Nominated for Young Professional Best Paper Award 2008 Air and Waste Management Association]
34. Singh, K., E. W. Tollner, S. Mani, L. M. Risse, **K. C. Das**, and John Worley. 2008. Transforming solid wastes into high quality bioenergy products: Entropy analysis. ASME Paper No. 1924. Peer reviewed proceedings, North American Waste to Energy Conference (NAWTEC-16), Philadelphia, PA. May 19-21.
35. Singh K., E. W. Tollner, S. Mani, L. M. Risse, **K. C. Das**, and J. Worley. 2008. Emergy analysis of a pyrolysis process. Peer review proceedings, Fifth Biennial Energy Research Conference, University of Florida, Gainesville, Florida, January 31 - February 2.
36. Jena, U., S. Chinnasamy, S. Mani, and **K. C. Das**. 2008. Thermochemical liquefaction of microalgae into biofuels. Annual Environmental Conference, Atlanta, Georgia, October 9.
37. Jena, U., and **K. C. Das**. 2008. Kinetic study of catalytic decomposition of paper mill sludge, paulownia wood waste and micro algae using thermo gravimetric analyzer. Annual meeting of American Society Agricultural and Biological Engineering. Providence, Rhode Island, USA. June 29- July 2.
38. Jena, U., S. Chinnasamy, and **K. C. Das**. 2008. Transformation of algae into biofuel and chemicals. Annual meeting of Georgia section of American Society Agricultural and Biological Engineering, GA Soil and Water Conservation Engineering, Georgia section of International Erosion Control Engineering, Athens, GA, USA. June 4-6.
39. Jena, U., and **K. C. Das**. 2008. Gasification study of paper mill sludge, paulownia wood waste and micro algae using thermo gravimetric analyzer. Annual meeting of Institute of Biological Engineering, Chapel Hill, NC, USA. March 6-8.
40. Joshee, N., S. Corbett, K.C. Das, and A.K. Yadav. 2008. Paulownia: A multipurpose tree. Conference presentation at The VI International Symposium of Floriculture and Silviculture in Arid Zones, 2008. La Paz, Baja California, Mexico. March 12-15.
41. Gaskin, J.W., A. Speir, K. Harris, D. Lee, and **K.C. Das**. 2008. Effect of pyrolysis chars on corn yield and soil quality in a loamy sand soil of the southern United States. Paper presented at The Conference of the International Biochar Initiative -Biochar, Sustainability and Security in a Changing Climate, 2008, Newcastle, United Kingdom, Sept 8-10.

42. Steiner, C., K. Harris, J. Gaskin, and **K.C. Das**. 2008. Pyrolytic char characterization for its use as a soil amendment. Paper presented at The Conference of the International Biochar Initiative -Biochar, Sustainability and Security in a Changing Climate. Newcastle, United Kingdom, Sept 8-10.
43. Baker, S.A., M.D. Westbrook., W.D. Greene, **K.C. Das**, J.D. Peterson, and R.L. Izlar. 2008. Evaluation of integrated harvesting systems in pine stands of the southern United States. Paper presented at the World Bioenergy Conference, Jonkoping, Sweden, May 23-25.
44. **Das, K.C.** 2008. Catalytic processes for conversion of biomass to liquid fuels. Forestry Resources Association Annual Conference, Myrtle Beach, SC, April 14.
45. **Das, K.C.** 2008. Pyrolysis based biorefinery -Multiple coproducts and their utilization. Beneficial use of industrial materials summit. Denver, CO, March 31- 10.
46. Singh, K., **K.C. Das**, M. Risse, and J. Worley. 2007. Determination of Composition of Cellulose and Lignin Mixture using Thermo Gravimetric Analysis (TGA). ASME Paper No. 32222. Peer reviewed proceedings, North American Waste to Energy Conference (NAWTEC-15). Three Park Avenue. NY: ASME.
47. **Das, K.C.** 2007. Sustainable biomass conversion through large scale composting – process, principles, and technologies. Workshop and seminar, Dec 13-14, SRM University – Department of Biotechnology, Chennai, India.
48. **Das, K.C.** 2007. Biorefining and thermochemical conversion of biomass to energy and products. [International invited presentation], University of South Australia, Mawson Lakes Camus, South Australia, May 7.
49. Mani, S. and **K.C. Das**. 2007. Life cycle analysis of charcoal production from biomass. AIChE Annual Conference, Salt Lake City, Utah, USA.
50. **Das, K.C.** 2007. Thermochemical biorefineries and the use of products for fuels, biochar and chemicals. [International invited presentation], Shanghai Academy of Environmental Sciences, Shanghai, China, July 11.
51. **Das, K.C.** 2007. Sustainable biomass conversion through large scale composting -process, principles, and technologies. Workshop and seminar at SRM University -Department of Biotechnology, Chennai, India. Dec 13, 14.
52. Steiner, C., W.G. Texiera, J. Lehmann, B. Glaser, **K.C. Das**, M. de Arruda, and W. Zech. 2007. Agrichar charcoal use -studies in the humid tropics. Poster presented at the International Agrichar Initiative Conference, Terrigal, NSW, Australia. April 29-May2.
53. **Das, K.C.** 2007. Biorefinery and hydrogen fuel cells research and education program. DOE Biomass Program - Integrated Biorefineries Program Peer Review, Denver Co, August 10.
54. Singh, K., L.M. Risse, J. Worley, **K.C. Das**, and S. Thompson. 2007. Energy and BioOil production from poultry litter using fractionation and pyrolysis -A quality assurance project plant (QAPP). Paper No. 078021 presented at ASABE Annual international meeting, Minneapolis, Minnesota, June 17-20.

55. Singh, K., L.M. Risse, J. Worley, K.C. Das, and S. Thompson. 2007. Adding value to poultry litter using fractionation, pyrolysis, and pelleting. Paper No. 074064 presented at ASABE Annual international meeting, Minneapolis, Minnesota, June 17-20.
56. Hunt, R., S. Chinnasamy, and K.C. Das. 2007. Microalgae based biodiesel production using poultry litter. Presented at the “Incredible anaerobes -from physiology to genomics to fuels”. The Georgia Center, University of Georgia, March 2-3.
57. Cyetkovic, Z., Y. Genest, E.T. Davies, K.C. Das, and J. Doran Peterson. 2007. Ethanol production from pulp and paper sludge. Presented at the “Incredible anaerobes -from physiology to genomics to fuels”. The Georgia Center, University of Georgia, March 2-3.
58. Das, K.C. 2007. Pyrolysis processes and products. Presentation at the “Biomass: Dispelling myths and advancing the truth about this valuable resource” workshop, Forsyth GA. The Georgia Forestry Association. Feb 27.
59. Gaskin, J., A. Speir, K. Harris, D. Lee, L. Morris, and **K.C. Das**. 2007. Effect of Two Types of Pyrolysis Chars on Corn Yield, Soil Nutrient Status, and Soil C in a Loamy Sand Soil of the Southeastern United States. Abstracts of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America International Annual Meetings. New Orleans, LA. Nov. 4-8.
60. Harris, K., J. Gaskin, and **K.C. Das**. 2007. Effect of Feedstock and Production Method on Pyrolysis Char Properties for Use as an Agricultural Soil Amendment. Abstracts of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America International Annual Meetings. New Orleans, LA. Nov. 4-8.
61. Gaskin, J.W., A. Speir, L.M. Morris, L. Ogden, K. Harris, D. Lee, and **K.C. Das**. 2007. Potential for pyrolysis char to affect soil moisture and nutrient status of a loamy sand soil. Proceedings of the 2007 Georgia Water Resources Conference. University of Georgia. Athens, GA. March 27-29.
62. Garcia-Perez., M., C-Z. Li, M. Rhodes, and **K.C. Das**. 2007. Challenges and opportunities for the use of crude bio-oils as source of fuels and chemicals. Bioenergy Australia, Fremantle Western Australia, Dec 6-7.
63. **Das, K.C.** 2006. Presentation at the annual composting technology workshop, University of Georgia, Athens. October 10-12, 2006.
64. **Das, K.C.** 2006. Biorefining principles and opportunities. Presentation to the State of Georgia Animal Waste Roundtable meeting, October 3, Georgia Center, The University of Georgia, Athens, Georgia, USA.
65. **Das, K.C.** 2006. Biorefinery Engineering – Bioconversion, composting and other processing, for value added production. Presentation at the National Agricultural Research Institute, Georgetown, Guyana, June 13. [International invited presentation]
66. **Das, K.C.** 2006. Composting technology principles and state of the art. Presentations at the Guyana School of Agriculture, Mon Repos Guyana, June 12. [International invited presentation]

67. **Das, K.C.** 2006. Biorefining principles and opportunities. [Invited presentation] The University of Georgia Academy of the Environment Symposium, October 24, Georgia Center, The University of Georgia, Athens, Georgia USA.
68. Gaskin, J., L. Morris, D. Lee, R. Adolphson, K. Harris, and **K.C. Das**. 2006. Effect of pyrolysis char on corn growth and loamy sand soil characteristics. Abstracts of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America International Annual Meetings. Indianapolis, IN. Nov. 12-16.
69. Harris, K., J.W. Gaskin, L.S. Sonon, and **K.C. Das**. 2006. Characterization of pyrolysis char for use as an agricultural soil amendment. American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America International Annual Meetings. Indianapolis, IN. Nov. 12-16.
70. Sonon, L. K. Harris, J. Gaskin, and **K.C. Das**. 2006. Phosphorus sorption characteristics of Tifton soil amended with pyrolysis-derived chars. Abstracts of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America International Annual Meetings. Indianapolis, IN. Nov. 12-16.
71. **Das, K.C.**, J.A. Garcia-Nunez, and M. Garcia-Perez. 2006. Overview of a Biorefinery and Opportunities in the Palm Oil Sector. Plenary address at the 15th International Palm Oil Conference, Cartagena, Colombia, Sept 19-25 [Memorias: XV Conferencia Internacional sobre Palma de Aceite, Cartagena Colombia, Sept 19-22]
72. Garcia-Nunez, J.A., M. Garcia-Perez, and **K.C. Das**. 2006. Determination of kinetic parameters of thermal degradation of palm oil mill byproducts using thermogravimetric analysis and differential scanning calorimetry. Paper presented at the International ASABE conference, Portland, Oregon, July 9-12.
73. Greene, W.D., and **K.C. Das**. 2006. Forest biomass potential for pyrolysis -Raw material issues and potential products. Paper presented at the 60th International Convention of the Forest Products Society of America. Newport Beach CA June 25-29.
74. **Das, K.C.** 2006. Biorefining principles and opportunities. Presentation to the State of Georgia Animal Waste Roundtable meeting, Georgia Center UGA. October 3.
75. **Das, K.C.**, T.T. Adams, and E.D. Threadgill. 2006. Update on research and outreach in biorefining at the University of Georgia. ASABE State Section Meeting. Athens GA. April 21.
76. **Das, K.C.**, T.T. Adams, and E.D. Threadgill. 2005. Biorefinery and Carbon Cycling Engineering. Poster presentation at the Renewable Resources and Biorefineries Conference, Ghent Belgium, Sept 19-21.
77. Barczak, S., **K.C. Das**, and R. Kilpatrick. 2005. Water Quality Implications of Bio-fuels development in Georgia. Proceedings of the 2005 Georgia Water Resources Conference, held at the University of Georgia. Kathryn J. Hatcher, editor, Institute of Ecology, The University of Georgia, Athens, Georgia. April 25-27.
78. **Das, K.C.**, and E.D. Threadgill. 2005. Biorefinery- Integrated processing of biomass to multiple products. Presentation to the SAF Meeting, Macon GA. [Continuing Education Credits] Aug 23.

79. **Das K.C.** 2005. Principles of biomass conversion through thermochemical processes. Lecture at the Horticulture College, Tamil Nadu Agricultural University, Theni, India. Dec 2005 [International invited presentation]
80. **Das K.C.** 2005. Biorefining Technologies: Overview and Assessment. BioCycle Conference, Charlotte, North Carolina, USA, Nov 13-16 [Invited Presentation].
81. Threadgill, E.D., and **K.C. Das**. 2005. Challenges to biomass conversion: Biomass opportunities and realities in the Southeast United States. Warnell School and NCAD Conference. Aug 29.
82. **Das, K. C.**, T.T. Adams, and E.D. Threadgill. 2005. BIOREFINERY - Integrated system for the conversion of Biomass to Chemicals, Fuels, and Bio-products. SC-NC-GA State Section ASAE meeting. Charleston SC, June 2-3.
83. **Das, K.C.**, T.T. Adams, R. Adolphson, and E.D. Threadgill. 2005. Biorefinery - Integrated system for the conversion of Biomass to Chemicals, Fuels, and Bio-products. Alternate Energy Technology Innovation, Georgia Tech Savannah Conference, Savannah GA, May 12.
84. **Das, K.C.**, T.T. Adams, R. Adolphson, and E.D. Threadgill. 2005. Biorefinery - Integrated system for the conversion of Biomass to Chemicals, Fuels, and Bio-products. Georgia Industrial Technology Partnership Conference, Atlanta GA, April 27.
85. Day, D., J. Lehmann, C. Steiner, **K.C. Das**. 2005. Long-term sequestration of carbon in soils using Charcoal from renewable energy production. Third USDA Symposium on Greenhouse Gases & Carbon Sequestration in Agriculture and Forestry; Wyndham Baltimore - Inner Harbor, Baltimore, Maryland March 21 -24. [Abstract and presentation]
86. **Das, K.C.** 2004. Composting Training to the Tribes -Coordinated by the US EPA and Carolina Composting Association. Cherokee NC. August.
87. Chinnasamy, S and **K.C. Das**. 2004. Converting sugar industry wastes into ecofriendly bioproducts. BioCycle 45(6):58-60.
88. Xia, K., G. Pillar, **K.C. Das**, and A. Bhandari. 2004. Pharmaceuticals, personal care products, and other organic chemicals in biosolids. Sustainable Land Application Conference, Lake Buena Vista, Florida. University of Florida -IFAS. Jan 4-8.
89. **Das, K.C.**, J.R. Kastner. 2004. Dust as a pathway for transport of odors. Annual International Meeting of the ASAE, Ottawa, Canada.
90. **Das, K.C.**, J.R. Kastner, N.D. Melear, and J.Q. Buquoi. 2003. Waste Ash Amendments for Reducing Odors during Decomposition of Organic Wastes. Annual International Meeting of the ASAE, Las Vegas, NV.
91. Kastner, J. R., (invited speaker), **K.C. Das**, C. Hue, R. McClendon, and Q. Buquoi. Odor Profile and Control. 2003. Poultry Protein & Fat Seminar, Memphis TN. October 9-10.
92. Kastner, J. R., **K.C. Das**, C. Hue, R. McClendon, and Q. Buquoi. 2003. Kinetics and Modeling of Odor Oxidation Using Chlorine Dioxide for Emission Control Utilizing Wet Scrubbers. Third International Conference on Air Pollution From Agricultural Operations, Durham, NC. October 12-15.

93. **K.C. Das**. 2003. Composting as a method of organic waste recycling. International Seminar on Pollution Abatement in Industries – All India Distiller’s Association, New Delhi, India, Dec 15-17 [International invited presentation]
94. Kastner J. R., **K.C. Das**, and Q. Buquoi. 2003. The Potential of Coupling Biological and Chemical/Physical Systems for Air Pollution Control: A Case Study in the Rendering Industry. Third International Conference on Air Pollution From Agricultural Operations, Air Pollution, Durham, NC. October 12-15.
95. Kastner J. R., **K.C. Das**, and N. Melear. 2003. Low Temperature Catalytic Oxidation of Sulfur Compounds Using Ash: Reaction Engineering for the Reuse of Waste Material. Institute of Biological Engineering Annual Symposium, Athens GA.
96. Kastner J. R., **K.C. Das**, A. Logan, M. Jones, Q. Buquoi, C. Hue, and R. McClendon. 2003. Potential Coupling of Biological and Physical/Chemical Systems for Air Pollution Control: Analysis in the Rendering Industry. Institute of Biological Engineering Annual Symposium, Athens GA.
97. **Das, K.C.**, M.L. Cabrera, and J.T. Kirkland. 2002. Characteristics of rainfall runoff from biosolids composting windrows. Composting in the Southeast, Palm Harbor, FL. Oct. 6-9.
98. Governo, J.D., **K.C. Das**, and S.A. Thompson. 2002. Compost Wizard ©: Modeling A Compost Facility. Proceedings of the World Congress of Computers in Agriculture and Natural Resources (13-15, March 2002, Iguacu Falls, Brazil), pp. 318-324.
99. Governo, J.D., B. Faucette, S.A. Thompson, and **K.C. Das**. 2002. University of Georgia conducts state composting assessment and product characterization. Composting in the Southeast, Palm Harbor, Florida. October 6-9.
100. **Das, K.C.**, E.W. Tollner, and T.G. Tornabene. 2002. Pulp and paper industry byproducts composting: Process development and implementation. International Symposium on Composting Technology and Compost Utilization. The Ohio State University, Columbus, Ohio. May 6-8.
101. **Das, K.C.** 2002. Compost Operator Training. Invited presentation, 1-day training to the Carolina Recycling Association members, Nov 7, Rock Hill, South Carolina.
102. **Das, K.C.** 2002. Fundamental and advanced topics in composting and facility management. Invited 3-day regional training program offered through the Carolina Recycling Association, Nov 12-15, Pittsboro, North Carolina.
103. **Das, K.C.** 2001. Odor related issues in large-scale composting. Presented at the BioCycle Conference, Atlanta, Georgia. August 27-28.
104. Governo, J.D, **K.C. Das**, and S.A. Thompson. 2001. Modeling the design of windrow composting to maximize the bottom-line. ASAE Annual meeting, Sacramento, California. [Graduate student paper]
105. Kastner, J.R., and **K.C. Das**. 2001. Effect of ash on the catalytic removal of hydrogen sulfide from a mixed gas stream. ASAE Annual meeting, Sacramento, California.

106. **Das, K.C.** “Composting process technology and management” [Aug 2001]. Invited to present a 3-day educational training workshop to 13 attendees of the Seminole tribe of Florida, Brighton Reservation, Brighton, Florida.
107. **Das, K.C.** “Composting process technology and management” [Aug 2001]. Invited to present a 3-day educational training workshop to 13 attendees of the Seminole tribe of Florida, Brighton Reservation, Brighton, Florida.
108. **Das, K.C.** “Composting technology and management aspects” [Aug 2000]. Organized and presented this 3-day workshop at Cherokee, NC for the Tribal Association for Solid Waste and Environmental Response (TASWER). The 22 attendees included tribal representatives from all over the USA.
109. **Das, K.C.**, E.W. Tollner, and M.A. Eiteman. 2000. Improving composting by control of the solid matrix structure. Transactions of the Y2K Composting in the Southeast, Charlottesville, VA.
110. Kastner, J.R., **K.C. Das**, and R.S. Cherry. 2000. Sizing biofilters using kinetics and reactor design equations. ASAE Paper 00-4097. ASAE Annual Meeting, Milwaukee, Wisconsin.
111. Ding, Y., **K.C. Das**, W.B. Whitman, and J.R. Kastner. 2000. Microbial ecology and process performance of a biofilter treating multiple gas contaminants. ASAE Paper 00-4096. ASAE Annual Meeting, Milwaukee, Wisconsin. [Graduate student paper]
112. E.W. Tollner, and **K.C. Das**. 2000. The University of Georgia Bioconversion Center. Transactions of the Y2K Composting in the Southeast, Charlottesville, VA.
113. Faucette, B., **K.C. Das**, and L.M. Risse. 2000. Evaluation of aerated container composting of pre-consumer and post consumer food residuals. Transactions of the Y2K Composting in the Southeast, Charlottesville, VA.
114. **Das, K.C.**, E.W. Tollner, T.G. Tornabene, and F.D. Whorley. 1999. Composting treatment of paper mill residuals. ASAE Paper 99-5039. ASAE Annual Meeting, Toronto, Canada.
115. **Das, K.C.**, et al. 1999. Biofiltration of odorous gases from a dehydrated foods operation. The Georgia Operator, Summer 1999, p 35-52.
116. **Das, K.C.** 1999. Invited presentation on the design and management of composting systems. University of Tennessee -Producing and Using Wood Workshop, Knoxville TN. October.
117. **Das, K.C.** 1999. GWPCA conference on Biosolids in Athens, GA. November. [Invited presentation].
118. **Das, K.C.** 1999. Invited presentation on Odor/VOC reduction technologies. GWPCA industrial waste conference, Cobb Galleria. February.
119. **Das, K.C.** 1999. The TASWER-Tribal association for solid waste and environmental remediation. Invited presentation on the technology options for solid waste treatment. Cherokee, NC.
120. **K. C. Das**, E.W. Tollner, and T.G. Tornabene. 1998. Composting pulp and paper industry solid wastes: process design and product evaluation. In: Proceedings of the Composting in the Southeast-Conference and Expo. Athens, GA, Sept. 9-11, 1998. Published by the University of Georgia, Athens, Georgia.

121. D. Lewis, **K.C. Das**, R. Reed, G. Harris, L.M. Risse, R. Roberts, L. Royal, J. Wilson, and J. Lott. 1998. A preliminary report on a Georgia city's innovative composting project cooperation between the city of Douglas and the University of Georgia: College of Ag. Proceedings Composting in the Southeast Conference and Expo. September 9-11.
122. R. Foote, and **K.C. Das**. 1998. Hall county waxed corrugated cardboard composting pilot project. 1998. Proceedings Composting in the Southeast Conference and Expo. Sept. 9-11.
123. S. Dudak, **K.C. Das**, and W.P. Miller. 1998. Blends of composted biosolids and bottom ash as potting media to grow ornamentals. Proceedings Composting in the Southeast Conference and Expo. September 9-11.
124. E.W. Tollner, J. Smith, and **K.C. Das**. 1998. Development and preliminary validation of a compost process simulation model. Proceedings Composting in the Southeast Conference and Expo. September 9-11.
125. P.M. Ndegwa, S.A. Thompson, and **K.C. Das**. 1998. Effects of stocking density and feeding rate on vermicomposting of biosolids. Proceedings Composting in the Southeast Conference and Expo. September 9-11.
126. M.C. Smith, **K.C. Das**, E.W. Tollner, W.H. Johnson, T.L. Davis, and J.G. Layton. 1998. Characterization of landfilled municipal solid waste following in situ bioreduction. Proceedings Composting in the Southeast Conference and Expo. September 9-11.
127. E.W. Tollner, J. Smith, and **K.C. Das**. 1998. Development and preliminary validation of a compost process simulation model. Proceedings Composting in the Southeast Conference and Expo. September 9-11.
128. **Das, K.C.**, P.A. Annis, and E.W. Tollner. 1997. Bioconversion process design applied to textile industry solid wastes. ASAE Annual International Meeting, Minneapolis, MN. Paper No. 97-5022. August.
129. McGuckin, R.L., M.A. Eiteman, and **K.C. Das**. 1997. Enhancement of food waste compost structure with synthetic bulking agents. ASAE Annual International Meeting, Minneapolis, MN. Paper No. 97-6051. August.
130. **Das, K.C.**, P.A. Annis, and E.W. Tollner. 1997. Bioconversion of textile industry solid wastes to value-added products. International conference and exhibition of the American Association of Textile Chemists and Colorists. Atlanta GA. Sept 28.
131. **Das, K.C.**, P.A. Annis, and E.W. Tollner. 1997. Bioconversion of wool industry solid wastes to value-added products. 2nd Annual conference on recycling of fibrous textile and carpet waste, Georgia Institute of Technology, Atlanta GA. May.
132. **Das, K.C.**, P.A. Annis, E.W. Tollner, and C.Q. Yang. 1997. Compostability evaluation of textile industry by-products. The 1997 Carpet, Apparel and Textile Environmental Conference, University of Georgia, Athens, April 14-15.
133. **Das, K.C.**, and E.D. Threadgill. 1997. Bioconversion research and demonstration at the University of Georgia. Proc. Southeastern sustainable animal waste management workshop. Tifton, GA.

134. **Das, K.C.**, S. Dudka, and W.P. Miller. 1996. Synthetic soil made from blends of biosolids and fly-ashes. Agronomy Abstracts, Nov 1996. Annual meetings of American Society of Agronomy, Crop Science and Soil Science Society of America, Indianapolis IN, Nov 3-8.
135. **Das, K.C.**, and H.M. Keener. 1996. Increasing in vessel efficiency at a commercial Biosolids composting facility: Practical aspects of moisture loss estimation and control. Composting in the Carolinas - Conference and Expo, Myrtle Beach, SC. October 23-25.
136. **Das, K.C.**, and H.M. Keener. 1996. Dynamic simulation model as a tool for managing a large scale composting system. 6th International Conference of Computers in Agriculture, ASAE, Cancun, Mexico.
137. Keener, H.M., D.L. Elwell, and **K.C. Das**. 1996. Technical evaluation of composting of sewage sludge with tree-bark and other wood waste as compared to woodchips. Unpublished report to The Columbus Division Sewer and Drainage, City of Columbus, OH. August.
138. Keener, H.M., D.L. Elwell, **K.C. Das**, and R.C. Hansen. 1995. Specifying design/operation of composting systems using pilot scale data. 7th International Symposium on Animal and Food Processing Waste, ASAE, St Joseph, MI.
139. Keener, H.M., D.L. Elwell, **K.C. Das**, and R.C. Hansen. 1995. Minimizing the cost of compost production through facility design and process control. European Commission Intl. Conf. "The Science of Composting", Bologna, Italy. May 30-June 2.
140. **Das, K.C.**, and H.M. Keener. 1995. Process control based on dynamic properties in composting: moisture and compaction considerations. European Commission International Conference "The Science of Composting", Bologna, Italy. May 30-June 2.
141. **Das, K.C.**, and H.M. Keener. 1994. Moisture Prediction and Control on a Continuous Basis in Full Scale Composting Reactors: Reports I, II. Phase II of the Study conducted at the City of Akron Composting Facility, Akron OH. Unpublished Report to the City of Akron. October
142. Keener, H.M., D.L. Elwell, **K.C. Das**, and R.C. Hansen. 1994. Remix Frequency of Compost Based on Moisture Control. International Summer Meeting of The American Society of Agricultural Engineers, Kansas City, Missouri. Paper No. 944066. June.
143. **Das, K.C.**, and H.A.J. Hoitink. 1993. Quantitative Respirometry for the Analysis of Compost Stability: The Laboratory Procedure. Internal Publication. Circulated to compost producers using the procedure state wide.
144. Keener, H.M, D.L. Elwell, R.G. Hansen and **K.C. Das**. 1993. Effects of Product Mix and Twice Weekly Turning on Composting Rates for Food-Waste -- Phase I. Unpublished Report to EarthGro Inc., Lebanon, Connecticut.
145. **Das, K.C.**, and M.D. Evans. 1991. Image processing algorithms for detecting infertile eggs during early incubation. International summer meeting of the American Society of Agricultural Engineers, Albuquerque, New Mexico. Paper No. 917010. June.

Other Technical Presentations/Reports (Total 2)

1. Bioconversion feasibility study for Clay, Quitman, and Randolph counties, Georgia. Report to Southwest Georgia Regional Development Authority [Dec 2000].

2. Hosted a 1-day conference for the USAID-Solid Waste Technology Exchange Group from India. Developed package of technical abstracts and relevant publications of department faculty for this group [Aug 1999]

Summer Schools and Institutes (Total 6)

1. Compost Operator Training. 1-day training to the Carolina Recycling Association members. Rock Hill SC. [November 7, 2002] [Invited Presentation]
2. Fundamental and advanced topics in composting and facility management. Invited 3-day regional training program offered through the Carolina Recycling Association. Pittsboro, NC [November 12-15, 2002]
3. Compost Operator Training Workshop: A two-day workshop providing attendees exposure to the physical, chemical and biological aspects of composting as a waste treatment process. Coverage focused on design, operation and management of large-scale organic waste composting facilities [Multiple years 1998-2003].
4. "Composting process technology and management". 3-day educational training workshop to 13 attendees of the Seminole tribe of Florida, Brighton Reservation, Brighton, Florida. [Aug 2001] [Invited Presentation]
5. "Composting technology and management aspects". Organized and presented this 3-day workshop at Cherokee, NC for the Tribal Association for Solid Waste and Environmental Response (TASWER). The 22 attendees included tribal representatives from all over the USA. [Aug 2000].
6. "Odor related aspects of large scale composting". Workshop presented at the Composting in the Southeast Conference in Charlottesville, VA. The 32 attendees included professionals from around the southeast United States. [Oct 2000]

PATENT DISCLOSURES AND APPLICATIONS

1. U.S. Utility Patent Application 2011. Biological optimization systems for enhancing photosynthetic efficiency and methods of use. Publication No. US 2011/0179706A1; Application No: 13/014,464 Filed Jan 26, 2011. UGARF. Inventors: R.W. Hunt, S. Chinnasamy, **K.C. Das**, and E.R de Mattos.
 2. U.S. Provisional Patent Application. 2010. Biostimulants for enhancing biomass productivity and other metabolites in algae for biofuel and other commercial applications. **K.C. Das**, R.W. Hunt, S. Chinnasamy. Docket No. 222102-8990. Utility Patent Application Filed, Jan 16, 2011 (listed above).
 3. Patent Disclosure: 2010. Biostimulants for enhancing biomass productivity and other metabolites in algae for biofuel and other commercial applications. Inventors: **K.C. Das**, R.W. Hunt, S. Chinnasamy. Provisional Patent Application Filed (listed above).

4. U.S. Utility Patent Application. 2011. Method and system of culturing an algal mat. Application No. 13/089, 380 (DOE #S-119,210). Filed April 19, 2011. US Department of Energy. Inventors: **K.C. Das**, B.R. Cannon, A. Bhatnagar, and S. Chinnasamy.
 5. Patent Disclosure: 2009. Fog Supported Algal Mat Generator (FAM-Generator): A novel algal production technology for biofuel, bioenergy, and added value products. Inventors: B.R. Cannon, S. Chinnasamy, A. Bhatnagar, **K.C. Das**.
6. U.S. Utility Patent Application. 2010. Algal lipid harvest using mollusk for biofuel production. Publication No. US 2011/0045556; Application No. 12/862,246. Filed Aug 24, 2010. UGARF. Inventors: **K.C. Das**, S. Chinnasamy, J. Shelton, S.B. Wilde, R.S. Haynie and J.A. Herrin.
 7. Patent Disclosure: 2009. A novel biobased method of harvesting microalgae for biofuels production. Inventors: **K.C. Das**, S. Chinnasamy, J. Shelton, S. Wilde, R. Haynie, J. Herrin.
8. U.S. Utility Patent Application. 2010. Method of increasing biomass productivity, lipid induction, and controlling metabolites in algae for production of biofuels using biochemical stimulants. Publication No. US 2011/0091945 A1; Application No. 12/907,206. Filed Oct 19, 2010. UGARF. Inventors: **K.C. Das**, R.W. Hunt, S. Chinnasamy, R. Claxton, and P. Raber.
9. U.S. Utility Patent Application. 2010. Production of higher quality bio-oil by in-line esterification of pyrolysis vapors. Filed Sept 2, 2010; Application No. WO 2010099058; Inventors: R.N. Hilten, **K.C. Das**, J.R. Kastner and B.P. Bibens.
 10. Patent Disclosure: 2009. Production of higher quality bio-oils by in-line esterification of pyrolysis vapor with ethyl alcohol. Inventors: R.N. Hilten, **K.C. Das**, J.R. Kastner, B.P. Bibens.
11. U.S. Utility Patent Application. 2010. Microalgae cultivation in a wastewater dominated by carpet mill effluents for biofuel application. Filed April 8, 2010; Publication No. US 2010/0267122 A1; Application No. 12/756,371; Inventors: S. Chinnasamy, A. Bhatnagar, R.W. Hunt, R. Claxton, M. Marlowe, and **K.C. Das**.
 12. Patent Disclosure: 2009. Animal waste derived organic plankton booster as low-cost renewable nutrient source for algaculture to produce biofuels. Inventors: **K.C. Das**, A. Bhatnagar, R.W. Hunt, S. Chinnasamy.
 13. Patent Disclosure: 2009. Mixotrophic algae and their consortia for the production of algae biofuel feedstock in wastewater fed open ponds. Inventors: A. Bhatnagar, S. Chinnasamy, **K.C. Das**.
 14. Patent Disclosure: 2009. Renewable biomass, biofuel, and bioproducts production from carpet industry wastewater (treated and untreated) using mixotrophic alga(e). Inventors: S. Chinnasamy, A. Bhatnagar, R.W. Hunt, R. Claxton, M. Marlowe, **K.C. Das**.

15. PCT International Patent Application. Filed 12 Aug 2010. Application No. PCT/US2010/045266. Biochars, methods of using biochars, methods of making biochars, and reactors. UGARF. Inventors: **K.C. Das**, N. Balagurusamy, S. Chinnasamy, G.J. Martinez Castro and C.A. Espino Lopez.
16. Patent Disclosure: 2009. Biochar as biostimulant to enhance biomethane production from animal waste. **K.C. Das** (3/10), S. Chinnasamy (3/10), N. Balagurusamy (2/10), G. Castro (1/10), C. Lopez (1/10).
17. Patent Disclosure: 2009. Process and product for minimizing nitrogen losses, enhancing microbial activity and accelerating stabilization of organic wastes during composting. Inventors: C. Steiner (4/10), **K. C. Das** (4/10), N.D. Melear (2/10).
18. Utility Patent Application Filed: 2007. Method for controlling the cooling rate and composition of condensing vapors from biomass pyrolysis. Inventors: T.M. Lawrence and **K.C. Das**.
19. Patent Disclosure: 2005. Method for controlling the cooling rate and composition of condensing vapors from biomass pyrolysis. Inventors: T.M. Lawrence and **K.C. Das**.
20. Patent Disclosure: 2003. Method for removal of reduced sulfur compounds and odors from gaseous emissions using coal fly ash as a catalyst. Inventors: J. R. Kastner, **K.C. Das**, and N.D. Melear.

GRADUATE STUDENT EDUCATION (MASTERS AND PH.D)

Major Professor/Co-Major Professor [Total 18]

1. Mr. Shunli Wang – Ph.D. Biological Engineering – Anaerobic digestion of industrial wastes [**Major Professor** – 2010 to Present]
2. Mr. Erico Mattos – M.S. Crop and Soil Science. Enhancement of algae production [**Co-Major Professor** – Dr. Miguel Cabrera; 2009-Present]
3. Ms. Carrie Ross – Ph.D Dairy Science. Studies on rumen based inoculum for anaerobic digesters. [**Co-Major Professor** – Dr. Mark Froetschel; 2009-Present]
4. Mr. Roger Hilten – Ph.D. Biological Engineering – Thermal conversion of biomass and catalytic upgrading of pyrolysis oils [**Major Professor**: 2007-Present].
5. Mr. Sung-Ha Won – Ph.D. Environmental Health Science – Toxicological studies in anaerobic digesters treating industrial effluents production [**Co-Major Professor** – Dr. Marsha Black; 2010-Present]
6. Mr. Umakanta Jena – Ph.D. Biological Engineering – Thermal conversion of algae biomass to value added products [**Major Professor**: 2011].
7. Mr. Ryan Hunt – M.S. Biological Engineering – Biochemical stimulation of algae production [**Major Professor**: 2010].
8. Ms. Sarahi Garcia – M.S. Biological Engineering – Evaluation of community shifts in an anaerobic digestion system with inoculum developed for acid tolerant methanogens [**Major Professor**: 2010]

9. Mr. Kevin Lee – M.S. Biological Engineering – Enhancement of anaerobic digestion process through the use of biochar [**Major Professor**: 2010]
10. Ms. Nisha Vaidyanathan – M.S. Biological Engineering – Evaluation of attached growth algae systems [**Major Professor**:2010]
11. Mr. Nicholas Chammoun – M.S. Biological Engineering – On farm production of energy using agricultural residues [**Major Professor**: 2009].
12. Ms. Sarah Doydora – M.S. Crop and Soil Science. Biochar use for reducing nutrients release in poultry litter land application [**Co-Major Professor** – Dr. Miguel Cabrera; 2009]
13. Mr. Kaushalendra Singh – PhD. Biological Engineering – Thermal conversion of poultry litter for energy and products [**Co-Major Professor** – Dr. L.M. Risse: 2008].
14. Mr. Erik Jarrett - M.S. Biological Engineering – Pyrolysis studies on controlled eutrophication algal biomass [**Major Professor**: 2008].
15. Mr. Jarrod Smith - M.S. Biological Engineering – Comparison of pyrolysis process and products from high fat biomass [**Major Professor**: 2008].
16. Mr. Jesus Garcia - M.S. Biological Engineering – Thermochemical conversion of palm oil mill residues for biochar and biooil production [**Major Professor**: 2005].
17. Ms. Yan Ding – M.S. Biological Engineering – Microbial ecology and kinetic study of a biofilter treating hydrogen sulfide and methanol. [**Major Professor**: 2001]
18. Dr. Chun Liang – M.S. Artificial Intelligence – Experimental and neural network modeling of physical variables during the composting of biosolids. [**Co-major Professor**: 2001. Primary research guide for masters thesis research]

Graduate Committees [Total 18]

1. Mr. Krishna Ganesh – M.S. Biological Engineering. Continuous power generation and treatment of leachate using a microbial fuel cell. [**Committee** – Chair Jenna Jambeck; 2010-Present]
2. Mr. Rick Ormsby – M.S. Biological Engineering. Kinetics of levoglucosan and hemicellulose hydrolysis with carbon supported solid acid catalysts. [**Committee** – Chair James Kastner; 2011]
3. Mr. Brian Snyder – PhD Ecology – 2008-2012 – Costs of atmospheric carbon removal via pyrolysis in Costa Rica. [**Committee** – Ron Carroll, 8/08 to Present]
4. Mr. Thiruvengadam Vishwanathan – M.S. Biological Engineering. Drying and extraction of value added compounds from microalgae grown in raceway ponds. [**Committee** – Chair Sudhagar Mani; 2011]
5. Ms. Ankita Junega – M.S. Biological Engineering. Catalytic cracking of tar compounds from syngas for liquid fuel production. [**Committee** – Chair Sudhagar Mani; 2011]
6. Ms. Manunya Phanphanich – M.S. Biological Engineering. Torrefaction and densification characteristics of forest biomass. [**Committee** – Chair Sudhagar Mani; 2011]
7. Mr. Gerald Lindo – M.S. Biological Engineering. Torrefaction reaction kinetics of southern pine wood. [**Committee** – Chair Sudhagar Mani; 2011]

8. Mr. Charles Traver – M.S. Ag and Applied Economics. Topic unselected [**Committee** – Chair Michael Wetzstein; 2007-09]
9. Ms. Carrie Neeley - M.S. Crop and Soil Sciences. Microbial characterization of the effect of biochar on soil. [**Committee** – Peter Hartel; 2009 – Present]
10. Ms. Li Wang - M.S.. Biological Engineering [2007] – [**Committee** – J.R. Kastner]
11. Mr. Michael Westbrook – M.S. Forestry [2007] – Logistics of forestry residue collection and use as biofuel – [**Committee** – W. Dale Greene]
12. Mr. Praveen Kolar – PhD. Biological Engineering [2008] – [**Committee** – J.R. Kastner]
13. Mr. Yihui Zhu – PhD. Biological Engr [2008] – [**Committee** - Mark Eiteman]
14. Mr. Cheng Hu – M.S. Artificial Intelligence [2004] – Modeling chemical reactions of ClO₂ and VOCs using artificial neural networks - - [**Committee** – R.W. McClendon]
15. Mr. Britt Faucette – PhD. Ecology [2005] – Reduction of rainfall runoff in urban areas through the use of composts and other organics – [**Committee** – Carl Jordon]
16. Mr. Jason Governo – M.S. Agricultural Engineering [2002] – Process design for compost facility planning – [**Committee** – Sidney Thompson]
17. Mr. Xiao Dong – M.S. Biological Engineering [2000] – Ammonia oxidation treatment of animal manure – [**Committee** – E. William Tollner]
18. Ms. Robyn McGuckin – M.S. Agricultural Engineering [1998] – Pressure drop of food waste composting mixes – [**Committee** - Mark Eiteman]

Other student guidance [Total 13]

1. Mr. Rick Richwagen – CURO Scholar. Studies on growth characteristics of algae for biofuel applications. Two semesters 2011.
2. Mr. William Costanzo – CURO Scholar. Studies on biochemical stimulation of algae. Two semesters 2011.
3. Ms. Vandana Murthy – CURO Scholar. Studies on growth characteristics of algae for biofuel applications. Two semesters 2009.
4. Mr. Amphol Aworn – Visiting Ph.D. student from King Mongtuk University, Bangkok, Thailand. Project on pyrolysis of corn cobs and upgrading of BioOils for fuel applications [July 2007 – Jan 2008].
5. Mr. Yannick Genest – Graduate intern from ENSA, Rennes France. Worked on pyrolysis project as part of a 6-month internship. [Sept 2006 – Mar – 2007].
6. Young Scholars Program Mentor – College of Agriculture and Environmental Science (CAES). [2003-05] [Total of **four internships**]
7. Mr. Jason Governo – Provided technical assistance in the development of a feasibility study for a county bioconversion process.
8. Served as lead scientist and host in an EPA-funded Science and Technology internship program for **four senior-level students** from universities around the USA. Internship consisted of guiding students through a summer of research in the Bioconversion Laboratory [June-Aug, 2001].

SERVICE AT STATE AND NATIONAL LEVELS

1. Member USDA-NIFA national proposal review panel (A1521 Engineering Products), Oct 31-Nov 4, 2011. Reviewed 11 proposals and served on panel discussions for 47 proposals.
2. Invited proposal reviewer for North Dakota Renewable Energy Program – 2011 – Two proposals reviewed.
3. Invited proposal reviewer for US DOE Office of Science SBIR program. Two proposals reviewed – March 2011.
4. Presentation on Algae-Biorefinery at the recruiting symposium LSAMP, Savannah State University, Oct 14-15, 2011. Recruitment of under-represented minorities into Engineering.
5. Invited presentation – “Leadership, Diversity, Empowerment and Beyond” delivered to approximately 250 Federal Employees at the Russell Research Center, Athens GA, May 10, 2011. In commemoration of the Asian Pacific Heritage Month.
6. Member USDA-SBIR national review panel, Washington DC – Jan 2010.
7. Invited proposal reviewer for KNAW Royal Netherlands Academy of Arts and Science – One proposal reviewed – Jan 2010.
8. Member NSF-Energy for sustainability review panel, Washington DC – Nov 2010.
9. Testified to the U.S. Congress House Committee on Small Business – Hearing on impact of legislation on the biofuels industry [May 2009].
<http://www.youtube.com/watch?index=16&feature=Playlist&v=5LcbpluKqc&list=PL9D8DC00E8639FFE2>
10. Served on several university, state and international committees as a giving back to the university, scientific community, and citizens at large. Committees and activity include both technical and non-technical service. A detailed listing is available on request.
11. Group Leader for the Sustainable Agricultural Bioresource and Logistics Group of the SE Biomass Partnership. USDOE/USDA. [2006- 1 year].
12. Served twice on the national technical review panel for USDA-SBIR. Reviewed and evaluated 14 proposals each time, including seven as lead reviewer [2001 and 2002].
13. Manuscript and proposal reviewer [1998-Present]:
 - Louisiana Board of Regents Research Program – 1 proposal reviewed 2010
 - Waste Management
 - INTERCIENCIA
 - Environmental Science and Technology
 - Advances in Environmental Research.
 - Chemical Engineering Journal.
 - Transactions of the ASAE.
 - Water Resources Research Institute.
 - The Soil Science Society of America Journal.
 - Proceedings of the Institute of Biological Engineers.
 - Compost Science and Utilization.
 - Biotechnology Progress
 - CSREES – USDA National Research Initiative Competitive Grants Program [2001]
 - Ad-hoc reviewer of over 6 USDA-SBIR proposals [1998-2001]

- Reviewed a Center for Excellence legislative funding proposal for the Florida Dept. of Environmental Quality. Florida DEQ Program Manager, Ms. F.C. Joyal.
14. Chairperson of a seven state regional conference planning committee of over 50 people representing universities, state agencies, nonprofit groups and private industry. Conference titled "Composting in the Southeast - Conference and Expo" was held in Athens GA, Sept 9-11, 1998. Attendance 278; 30 exhibitors; Raised \$18,000 in sponsorship.

SERVICE AT INTERNATIONAL LEVEL

1. Hosted a Senior Scientist from the Indian Agricultural Research Institute through a Fulbright Program. Dr. T. Purkayashta selected to come to UGA and worked here on biochar production and use.
2. Invited external reviewer for the Parsons Energy Research Program, University College Dublin, Dublin Ireland [April 2010]
3. External Assessor for PhD/M.Phil dissertation transfer report, University of Mauritius [2006 and 2007].
4. Established a research collaborative memorandum of understanding (MOU) between UGA-Biorefinery Center and Cenipama (Palm Oil research center), Bogotá, Colombia [2006].
5. Associate Editor – TRANSACTIONS OF THE ASAE – Specializing in Composting and Biological Treatment of Solid wastes [Jun 2000 – Present].
6. Member of the Scientific Advisor Board for the international journal, Compost Science and Utilization [Feb 2001 – Present].
7. Organized technical session at the International ASAE Conference in Sacramento, California, 2001. Session Title: Novel methods for air pollution control [11 speakers]
8. Organized technical session at the International ASAE Conference in Milwaukee, Wisconsin, July 8-12, 2000. Session Title: Biofiltration and novel methods for air scrubbing [8 speakers]
9. Served on technical review panel for TEST METHODS FOR THE EVALUATION OF COMPOST AND COMPOST PRODUCTS. Leader of the peer-review team for the Chapter on Physical Properties Methods. Test methods were developed by the US Composting Council and are currently being adopted as USDA Standards [2000].
10. Member SE 305-Environmental air quality – Technical committee of the American Society of Agricultural Engineers [1998-Present].

RESEARCH GRANTS AND CONTRACTS: SUMMARY

Since 1995 Dr. Das has participated as Principal Investigator (PI) or Co-PI in the development of over 150 competitive research grant proposals. Of these, over 75 proposals totaling \$7 million, have been successful and resulted in awards of research and development dollars to the University of Georgia. In addition, starting 2004 he has been serving as Director of the UGA

Biorefinery and Carbon Cycling Program that is funded through state and federal grants totaling \$7.4 million (in addition to the amount mentioned above).

Programmatic areas include biomass conversion for biofuels and products, including biochar and biooils (2004-Present); and organic waste management technologies research and development (1995-Present). A detailed listing of grant proposal title, funding agency, and amounts is available upon request.

TECHNOLOGY TRANSFER EXPERIENCE

1. Between 2004 and 2008, Dr. Das worked with Eprida Inc. (a private company based out of Georgia, USA) in pre-commercial testing of biomass pyrolysis and conversion of pyrolysis gases, through catalytic conversion, to hydrogen. The technology was developed by the National Renewable Energy Laboratory (Golden, Colorado) and technology transfer was provided by the University of Georgia. Dr. Das served as the technical lead from the University of Georgia on this project.
2. Dr. Das is presently research leader of five programmatic areas within the Biorefinery and Carbon Cycling Program (www.biorefinery.uga.edu) including: [1] Thermochemical (pyrolysis); [2] Biochar; [3] Microalgae-biofuels; [4] Biogas; and [5] Composting. Although his personal research program covers all these areas, he is focusing on waste to energy in microalgae and anaerobic digestion. He has had many years of experience working with the private sector in both engineering outreach and technology transfer.
3. Dalton Utilities (Dalton, Georgia; 2007-Present): Presently working on developing an algae-based biofuels production system that is targeted at biomass production and wastewater treatment. Work includes laboratory scale testing and onsite pilot testing at the company site.
4. Between 1992 and 2003, Dr. Das worked extensively in composting technology transfer to municipalities and private companies all over the USA. Specific examples are:
 - 4.1. Sevierville Solid Waste Authority, Inc. (Sevierville, Tennessee; 2008-Present): Providing design and management guidelines for odor control at a 250 tonne/day municipal solid waste composting site.
 - 4.2. Newnan Utilities (Newnan, Georgia; 2004-07): Designed and facilitated construction of a 150 tonne/day yard waste and biosolids composting operation. Technology transfer included startup, operator training, and development of record keeping for certification.
 - 4.3. Gold Kist, Inc. (Ballground, Georgia; 1999): Worked with food processing company to establish baseline volatile organics emissions and developed process control methods to reduce emissions. Most of this work was done on site at the process mill.
 - 4.4. Weyerhaeuser, Inc. (Oglethorpe, Georgia; 1998): Worked on pilot testing a paper mill sludge composting facility at the process mill.
 - 4.5. City of Douglas, Georgia (1997): Designed and facilitated construction of the municipal composting operation for a community of 15,000 people. Technology transfer included startup, process control development, operator training, and development of record keeping for certification.
 - 4.6. Kurtz Brothers, Inc. (Akron, Ohio; 1993-94): Worked with an 80 dry ton/day commercial composting company to establish a process control operations on site.

EXPERIENCE IN ESTABLISHING MAJOR RESEARCH PROGRAMS

During the 16 years Dr. Das has worked at the University of Georgia, he has had two opportunities to develop large interdisciplinary research programs that have risen to national and international recognition. In 1995 he started a program in organic waste management and value added processing. When he arrived on campus, there were no laboratory facilities or research personnel in this area. He provided leadership to the design and construction of 10,500 ft² lab space, an 8-acre research site, and purchase and commissioning of over a million dollars of laboratory and field equipment. This research program grew to a nationally recognized program and through his work he has published 38 peer-reviewed journal articles covering composting and biological odor control areas. His efforts have brought in approximately two million dollars of research funding to support this research and development work (1995-2003). This program evolved from one focused on biomass conversion for environmental reasons, to what is today an integrated program developing technology for biomass fuels and bioproducts.

In 2003, UGA partnered with Eprida Inc. to develop biorefinery technologies, including that of biochar production and use. Dr. Das has been served as Director of this partnership and the research program that developed out of it. Over the last eight years, he led a group of researchers that developed laboratory capabilities (including micro-TGA, 2-L batch reactors, 5 kg/hr continuous reactors, 500 kg batch biochar system, and worked with the 1000 kg/d pilot system), instrumentation capabilities (For detailed listing please visit: <http://www.biorefinery.uga.edu/facilities.html>), hired and trained laboratory personnel, and managed multi-million dollar budgets in this research program. He continues to write grant proposals to support this program and provides technical leadership. In this role, He has been active in collaboration with Forestry, Crop and Soil Science, Microbiology, Biochemistry, Animal Science, and a variety of other disciplines. He also works very closely with industry. His research efforts in the biorefining and carbon cycling area has resulted in authoring or co-authoring over 45 peer-reviewed journal articles; training over 25 graduate students, 5 post-doctoral associates, and several undergraduate students. Students and scientists who trained in his group now represent Faculty members at land-grant universities in the U.S., working in local government, and the private sector.