

Conference Program

AGU Hydrology Days 2010

| | March 22 | March 23 | March 24 |
|----------------|--|---------------------------------------|---|
| 8 am - 6 pm | Posters | Posters | Posters |
| 8 am | Registration | Registration | Registration |
| 8 am - 9:45 am | World Water Day | Subsurface Flow and Transport I | Water Resources Planning |
| 9:45 - 10 am | | Coffee break | Coffee break |
| 10 - 12 am | | Subsurface Flow and Transport II | Hydraulics - Erosion and Sedimentation |
| 12 - 2 pm | Lunch Borland Lecture in Hydrology | Lunch Hydrology Days Award Lecture | Lunch Borland Lecture in Hydraulics |
| 2 - 3:45 pm | Climate Variability and Change - Weather | River Networks and Ecology | Stream Restoration - Urban Hydrology - Wastewater Treatment |
| 3:45 - 4 pm | Coffee break | Coffee break | Coffee break |
| 4 - 6 pm | Hydrology Days Celebration | Poster Session | Stream Restoration - Urban Hydrology - Wastewater Treatment |

Hydrology Days 2010

| Monday, March 22 | | |
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| Date | Time | Session |
| March 22 | 8:00 am | Registration - West Ball Room - Lory Student Center |
| March 22 | 8:00 am | World Water Day |
| | | West Ball Room - Lory Student Center |
| | 8:00 | World Water Day Kickoff |
| | | Dignitaries Kick-Off – Pledge to support water research, education and outreach |
| | | Introductory remarks: Bill Farland, Senior Vice President for Research and Engagement, Colorado State University Doug Hutchinson, Mayor City of Fort Collins Representative Randy Fischer Representative John Kefalas Gary Wockner of Clean Water Action for Senator Bob Bacon |
| | 8:45 | Announcements, Recognition for Speakers & Dignitaries, The Tap Project |
| | | Reagan Waskom Colorado Water Institute |
| | 9:00 | Introductory Remarks |
| | | Jim Cooney Vice Provost for International Affairs, Colorado State University |
| | 9:15 | Global Water Initiatives at CSU |
| | | Neil S. Grigg Department of Civil and Environmental Engineering, Colorado State University |
| | 9:30 | Keynote Speaker: Securing Water for Multiple Water Futures |
| | | John Matthews Senior Program Officer for Freshwater Water Programs - World Wildlife Fund |
| | 10:30 | Panel Discussion |
| | | Introductory remarks: Patrick Burns, Vice President for Information Technology/Interim Dean of Libraries |
| | | Speaker Panel: LeRoy Poff (Graduate Degree Program in Ecology) Bill Kramer (College of Business) John Stednick (Department of Forest, Rangeland & Watershed Stewardship) Larry Goodridge (Department of Animal Sciences) Sybil Sharvelle (Department of Civil & Environmental Engineering) |
| | | Moderator: Reagan Waskom (Colorado Water Institute) |
| March 22 | 12:00 | Lunch Break - North Ball Room - Lory Student Center |
| | | Borland Lecture in Hydrology The wide range space-time scaling of precipitation: from stereophotography to gages, radars, satellites, and numerical models Professor Shaun Lovejoy Physics, McGill University, Montreal, Canada - NOAA PSL, Boulder, CO |
| March 22 | 2:00 pm | Climate Variability and Change - Weather |
| | | Chair: Jorge A Ramirez Department of Civil and Environmental Engineering, CSU |
| | | Cherokee Park Room - Lory Student Center |
| | 2:00 | Experimenting on the Variability and Predictability of the Colorado River Streamflows |
| | | J. D. Salas, D.J. Lee and C. Fu Department of Civil and Environmental Engineering, Colorado State University |
| | 2:15 | Effect of trends on the estimation of extreme precipitation quantiles |
| | | A. Cancelliere, B. Bonaccorso and G. Rossi Department of Civil and Environmental Engineering, University of Catania, Catania, Italy |
| | 2:30 | Climate Change's Impact on the Design of Water, Wastewater, and Stormwater Infrastructure |
| | | James A. O'Neill II Department of Civil and Environmental Engineering, Colorado State University |
| | 2:45 | Effects of temperature change on hydropower generation in snowmelt runoff basins |
| | | Peter Furey, Jordan Lanini, and Stephanie Kampf Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University |
| | 3:00 | The Evaluation of Climate Change Impacts on the Water Resource System of the Han-River Basin in South Korea - Based on |

Hydrology Days 2010

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| | | the AR4 SRES A2 Scenario |
| | | Soo Jun Kim, Hwan Don Jun, Byung Sik Kim, Hung Soo Kim Department of Civil Engineering, Inha University, Seoul, Korea |
| | 3:15 | A Review of the 2009 Water Year in Colorado State University |
| | | Nolan J. Doesken, Wendy Ryan and Michael Gillespie Colorado Climate Center and Dept. of Atmospheric Science, Colorado State University |
| | 3:30 | A Tale of Two Sites: Prediction of snow depth distribution at the first-order basin scale in the Colorado Rocky Mountains |
| | | James L. McCreight, Rajagopalan Balaji, Andrew G. Slater, Hans-Peter Marshall Department of Civil, Architectural, and Environmental Engineering, University of Colorado at Boulder |
| March 22 | 3:45 pm | Mid-afternoon break |
| March 22 | 4:00 pm | Hydrology Days Celebration |
| | | Chair: Professor Tissa Illangasekare Department of Civil and Environmental Engineering, CSU |
| | | Cherokee Park Room - Lory Student Center |
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| | 4:00 | Perspective on one's career and research contribution |
| | | Hubert J. Morel-Seytoux Emeritus Professor, Department of Civil and Environmental Engineering, Colorado State University |
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| | 4:45 | Economic Concept Based Approach for Multiple-Inequality-Constrained Optimization |
| | | Xiaoniu Guo and Chuan-Mian Zhang URS, Denver, CO, USA |
| | 5:00 | Evapotranspiration From Two Vegetative Covers in a Humid Shallow Water Table Environment |
| | | Mahmood Nachabe Department of Civil and Environmental Engineering, University of South Florida. Tampa, FL |
| | 5:15 | Channel Initiation in the Semiarid Colorado Front Range |
| | | Jameson Henkle Department of Geosciences, Colorado State University |
| | 5:30 | Evaluation of an EOF-Based Method to Estimate Soil Moisture Patterns at Catchments without Local Soil Moisture Observations |
| | | Frederick A. Busch, Jeffrey D. Niemann, and Michael L. Coleman Department of Civil and Environmental Engineering, Colorado State University |
| | 5:45 | Comparison of Linear and Nonlinear Methods to Interpolate Sparse Soil Moisture Observations |
| | | Michael L. Coleman and Jeffrey D. Niemann Department of Civil and Environmental Engineering, Colorado State University |

Hydrology Days 2010

Tuesday, March 23

| Date | Time | Session |
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| March 23 | 8:00 am | Registration - Cherokee Park Room - Lory Student Center |
| March 23 | 8:30 am | Subsurface Flow and Transport I Chair: Professor Domenico Baú Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center |
| | 8:30 | Decision Guide for Selecting Remedies for Chlorinated Solvent Releases Tom Sale Department of Civil and Environmental Engineering, Colorado State University |
| | 8:45 | In Situ Measurement of the Fractal Dimension of Colloid Deposits in Porous Media David C. Mays, Orion T. Cannon, Adam W. Kanold, Kevin J. Harris, Tim C. Lei, and Benjamin Gilbert Department of Civil Engineering, University of Colorado Denver |
| | 9:00 | Hydrophobic Contaminants in the Subsurface Mitchell Olson and Tom Sale Department of Civil and Environmental Engineering, Colorado State University |
| | 9:15 | A Mass Balance Approach to Resolving the Stability of LNAPL Bodies Nicholas Mahler and Tom Sale Department of Civil and Environmental Engineering, Colorado State University |
| | 9:30 | A Quantitative Estimate of the Upflow of Thermal Waters at a Dextral Strike Slip Zone at Mount Princeton Hot Springs, Colorado, using Geoelectrical Methods Kyle Richards, Andre Revil, Mike Batzle, Abdel Jardani and Allan Haas Geophysics Department, Colorado School of Mines |
| March 23 | 9:45 am | Mid-morning break |
| March 23 | 10:00 am | Subsurface Flow and Transport II Chair: Professor Tom Sale Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center |
| | 10:00 | Intermediate-scale Testing for Process Understanding, Model Validation and Up-scaling of Flow and Transport in the Heterogeneous Subsurface Tissa Illangasekare Center for Experimental Study of Subsurface Environmental Processes (CESEP) at Colorado School of Mines, Golden, CO |
| | 10:15 | Finite Element Solution to Groundwater Transport of Dissolved Contaminants Undergoing Decay and Non-Linear Sorption Domenico Baú Department of Civil and Environmental Engineering, Colorado State University |
| | 10:30 | Assimilating water table elevation data into a catchment hydrology modeling framework to estimate hydraulic conductivity Ryan T. Bailey and Domenico A. Baú Department of Civil and Environmental Engineering, Colorado State University |
| | 10:45 | Updates on Treatment of Contaminants in Low Permeability Zones J. Zimbron, A. Bolhari, and T. Sale Department of Civil and Environmental Engineering, Colorado State University |
| | 11:00 | Quantum Chemical Degradation Pathway Prediction for New and Emerging Contaminants Jens Blotevogel, Thomas Borch, Arthur Mayeno, and Tom Sale Department of Soil and Crop Sciences, Colorado State University |
| | 11:15 | Quantifying Irrigation Return Flow to the South Platte River, Colorado: Stable Isotope Methodology Katherine Davila Olmo, William E. Sanford and John D. Stednick Department of Geosciences, Colorado State University |
| | 11:30 | Using an ADCP to Determine Canal Seepage Loss in an Irrigation District Kristoph-Dietrich Kinzli; Matthew Martinez ; Ramchand Oad; Adam Prior and David Gensler Department of Civil and Environmental Engineering, Colorado State University |
| March 23 | 12:00 | Lunch Break - North Ball Room - Lory Student Center |
| | | Hydrology Days Award Presentation River Networks as Ecological Corridors for Species, Populations and Pathogens of Water-Borne Disease Professor Andrea Rinaldo École Polytechnique Fédérale de Lausanne (EPFL), Switzerland and Università di Padova, Italy |

Hydrology Days 2010

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| March 23 | 2:00 pm | River Networks and Ecology |
| | | Chair: Professor Jorge A Ramirez Department of Civil and Environmental Engineering, Princeton University Cherokee Park Room - Lory Student Center |
| | 2:00 | Hydrology and Biodiversity: a Crucial Link for a Sustainable Future Ignacio Rodríguez-Iturbe Department of Civil and Environmental Engineering, Princeton University |
| | 2:30 | A Generalized Habitat Model for Rocky Mountain Streams Thomas K. Wilding, N. LeRoy Poff, and Brian Bledsoe Department of Biology, Colorado State University |
| | 2:45 | Under What Conditions Do Parallel Channel Networks Occur? Kichul Jung, Jeffrey D. Niemann, and Xiangjiang Huang Department of Civil and Environmental Engineering, Colorado State University |
| | 3:00 | Representation of Urbanized Terrain and Its Use in a Morpho-Climatic Instantaneous Unit Hydrograph Jorge Gironás, Jeffrey D. Niemann, Larry A. Roesner, Fabrice Rodriguez, and Hervé Andrieu Dept. de Ingeniería Hidráulica y Ambiental, Pontificia Universidad Católica de Chile, Santiago, Chile |
| | 3:15 | A physically-based method for channel extraction in a watershed model Emily L. Boyd and Mazdak Arabi Department of Civil and Environmental Engineering, Colorado State University |
| | 3:30 | Application of Hydrologic Metrics to Quantify Stream Health in Small-Scale Urban Environment Steve K. Roznowski and Larry A. Roesner Department of Civil and Environmental Engineering, Colorado State University |

March 23 4:00 pm Mid-afternoon break

Poster Session

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| March 23 | Posters |
| | Chair: Professor Jorge A. Ramirez Department of Civil and Environmental Engineering, CSU North Ball Room - Lory Student Center |
| | GIS for Floodplain Management Durmus Cesur San Antonio River Authority, San Antonio, TX |
| | Assessing the effect of compaction from motorized winter recreation on snowpack properties in the Medicine Bow-Rout National Forest J. Heath, S.R Fassnacht, and K.J. Elder Dept. of Forestry, Rangeland, and Watershed Stewardship, Colorado State University |
| | Stepwise Nonparametric Disaggregation of Seasonal to Daily Streamflow Volumes conditional on Hydrologic and Large-Scale Climatic Signals José M Molina, Jorge A Ramirez and David A Raff Department of Civil and Environmental Engineering, Colorado State University |
| | Experimental and numerical studies on role of air flow in transient water retention behavior in one dimensional layered system subjected to drainage and wetting Anuchit Limsuwat, Toshihiro Sakaki, Abdullah Cihan, Tissa H. Illangasekare Center for Experimental Study of Subsurface Environmental Processes, Environmental Science and Engineering, Colorado School of Mines, Golden, CO |
| | Statistical Modeling of Daily Stream Temperature for Mitigating Fish Mortality Jason Caldwell and Balaji Rajagopalan CIRES, University of Colorado, Boulder |
| | Evaluation of Volatilization from NAPL Sources under Low Velocities with Implications for the Vapor Intrusion Pathway Benjamin Petri, Tissa Illangasekare, Toshiro Sakaki, Carolyn Sauck and John Christ Environmental Science and Engineering Division, Colorado School of Mines, Golden, Colorado |
| | Understanding TCE Vapor Generation from Dissolved Groundwater Plumes under Fluctuating Water Table Conditions Carolyn Sauck, Tissa Illangasekare, Toshiro Sakaki, Benjamin Petri, John Christ Center for Experimental Study of Subsurface Environmental Processes (CESEP) at Colorado School of Mines, Golden, CO |
| | An up-scaled two dimensional study for in-situ remediation of DNAPL contaminated aquifers using modified Nano-Zerovalent Iron Menka Mittal, Tanaphon Phenrat, Abdullah Cihan, Hye-Jin Kim, Gregory V. Lowry and Tissa Illangasekare Center for Experimental Study of Subsurface Environmental Processes (CESEP) at Colorado School of Mines, Golden, CO |
| | Shallow subsurface soil moisture behavior as affected by heat source boundary conditions: Experimental and modeling investigation |

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| | | Kathleen M. Smits, Abdullah Cihan, Toshihiro Sakaki, and Tissa H. Illangasekare Environmental Science and Engineering Division, Colorado School of Mines |
| | | Modeling Dry Ravel in 3D |
| | | Mary Ellen Miller, Pete Robichaud and Pete Wohlgemuth Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University |
| | | Comparison of adaptive methods using multivariate regression splines and artificial neural networks for the forecast of rain and temperatures in the Mantaro river basin |
| | | Karen Latínez Instituto Geofísico del Perú, Lima, Perú |
| | | The Application of the Fuzzy Set Theory in Natural River, to study Flood Risk Analysis as Function of its Hydraulic Parameters |
| | | Silvia Helena Santos, Patrícia Freire Chagas, Carla Freitas Andrade, Vanessa Ueta and Raimundo Souza Universidade Federal do Ceará, Fortaleza, Ceará, Brazil |
| | | Application of Mathematical Modeling to Study Flood Wave Behavior in Natural River as Function of Hydraulic and Hydrological Parameters of the Basin |
| | | Patrícia Freire Chagas, Silvia Helena Santos, Carla Freitas Andrade, Vanessa Ueta and Raimundo Souza Universidade Federal do Ceará, Fortaleza, Ceará, Brazil |
| | | Application of Fuzzy Set Theory on the Saint Venant Equations to Study Flood Wave Propagation in Natural Rivers |
| | | Vanessa Ueta, Patrícia Freire Chagas, Silvia Helena Santos, Carla Freitas Andrade and Raimundo Souza Universidade Federal do Ceará, Fortaleza, Ceará, Brazil |
| | | Flood Risk Analysis of Cocó Urban River in Fortaleza, Brazil |
| | | Carla Freitas Andrade, Vanessa Ueta, Patrícia Freire Chagas, Silvia Helena Santos, and Raimundo Souza Universidade Federal do Ceará, Fortaleza, Ceará, Brazil |
| | | A Study on Model Development for Analysis on Debris Flow |
| | | Kyewon Jun, Changdeok Jang, Byonghee Jun and Pierre Y. Julien Kangwon National University, Samcheok, South Korea |
| | | Variability of Snow Density Measurements in the Rio Esera Valley, Pyrenees Mountains, Spain |
| | | S.R. Fassnacht, C.M. Heun, J.I. Lopez-Moreno and J. Latron Watershed Science Program, Colorado State University |
| | | Comparison of Neutron Moisture Meter and Watermark Sensor Readings in a Field Experiment of Full and Limited Irrigation of Corn |
| | | K.C. DeJonge, A.A. Andales, N.C. Hansen, and J.C. Ascough II Department of Civil and Environmental Engineering, Colorado State University |
| | | Surface Grafting of Poly Acrylic Acid onto Nanofiltration Membranes for pH Response |
| | | Heath Himstedt, Katie Marshall, Ranil Wickramasinghe Department of Chemical and Biological Engineering, Colorado State University |
| | | Estimation of the Vulnerability of U.S. Water Supply to Shortage Under Current and Future Climatic and Economic Conditions |
| | | Romano Foti, Jorge A. Ramirez and Thomas C. Brown Department of Civil and Environmental Engineering, Colorado State University |
| | | Revisiting Soil-Terrain Relationships at a Long-Term Agroecosystem Study Site |
| | | Robert H. Erskine, Timothy R. Green, Lucretia A. Sherrod, and Gary A. Peterson USDA-ARS Agricultural Systems Research Unit, Fort Collins, CO |
| | | Upscaling soil hydraulic functions based on connectivity in heterogeneous porous media |
| | | Abdullah Cihan, Tissa H. Illangasekare, Anuchit Limsuwat, Toshihiro Sakaki Environmental Engineering and Science, Colorado School of Mines, Golden |
| | | Colorado Alpine Dust Deposition and Associated Continental Winds |
| | | Morgan Phillips Colorado Climate Center and Bureau of Land Management |

Hydrology Days 2010

| Wednesday, March 24 | | |
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| Date | Time | Session |
| March 24 | 8:00 am | Registration - Cherokee Park Room - Lory Student Center |
| March 24 | 8:45 am | Water Resources Chair: Professor Mazdak Arabi Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center |
| | 8:45 | Improving Irrigation System Performance in the Middle Rio Grande through Scheduled Water Delivery Nathi Manana, Kristoph-Dietrich Kinzli, Ramchand Oad, Luis Garcia, David Patterson, and Nabil Shafike Department of Civil and Environmental Engineering, Colorado State University |
| | 9:00 | Water governance: toward a model to address global water needs Neil S. Grigg Department of Civil and Environmental Engineering, Colorado State University |
| | 9:15 | Hydrological Assessment of the Upper Arkansas River Basin in Chaffee County, Colorado G.H. Steed, T. K. Gates, J. D. Niemann and J. W. Labadie Department of Civil and Environmental Engineering, Colorado State University |
| | 9:30 | WARPLAM DSS: using Cluster Analysis as an approach to delineate water resources planning and management regions Coelho M., A.C., Fontane, D.G., Labadie, J., Vlachos, E., Braga, B. Department of Civil and Environmental Engineering, Colorado State University |
| March 24 | 9:45 am | Mid-morning break |
| March 24 | 10:00 am | Hydraulics - Erosion and Sedimentation - Fluid Mechanics Chair: Professor Pierre Y. Julien Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center |
| | 10:00 | Cheongmi Stream Hydraulic Modeling Analysis Jaehoon Kim and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University |
| | 10:15 | Applicability of Gradient Terraces in Surface Mine Reclamation X. Shawn Huang, Lyle W. Zevenbergen and John N. Cochran River Engineering, Ayres Associates |
| | 10:30 | Numerical Analysis of the Performance of River Spanning Rock Structures: Evaluating effects of structure geometry on local hydraulics Christopher L. Holmquist-Johnson Department of Civil and Environmental Engineering, Colorado State University |
| | 10:45 | Application of GSTARS3 to Xiaolangdi Reservoir Sedimentation and Flushing Jungkyu Ahn and Chih Ted Yang Department of Civil and Environmental Engineering, Colorado State University |
| | 11:00 | Dam Breach Analysis for a Tailings Storage Facility Carmen Bernedo Sanchez and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University |
| | 11:15 | Study on Density Currents in a Stratified Reservoir Sangdo An and Pierre Y. Julien Department of Civil and Environmental Engineering, Colorado State University |
| | 11:30 | Runoff, Erosion, and Effects of Mulching on Burned Pine and Eucalyptus Plantations, Central Portugal Prats S.A., MacDonald L.H., Ferreira A.J.D., Keizer J.J. CESAM – Centro de Estudos do Ambiente e do Mar; Departamento de Ambiente e Ordenamento, Uni-versidade de Aveiro, Portugal |
| March 24 | 12:00 | Lunch Break - North Ball Room - Lory Student Center Borland Lecture in Hydraulics How will climate change affect fluvial geomorphology and salmonid habitat in mountain basins? Dr. John M. Buffington US Forest Service, Rocky Mountain Research Station, Boise, ID |
| March 24 | 2:00 pm | Stream Restoration - Urban Hydrology - Wastewater Treatment Chair: Professor Brian P. Bledsoe |

Hydrology Days 2010

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| | | Department of Civil and Environmental Engineering, CSU |
| | | Cherokee Park Room - Lory Student Center |
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| | 2:00 | On a Water Supply Index: Poudre River Case Study |
| | | Robert T Milhous Torries peak Analysis. Fort Collins, Colorado USA |
| | 2:20 | Comparing the Full Spectrum and Multi-Level Detention design for Urban Stormwater Detention Facilities |
| | | Xiaoju Zhang and Larry A. Roesner Department of Civil and Environmental Engineering, Colorado State University |
| | 2:40 | Innovative methods for guiding process-based restoration: A case study from Lulu City wetland, Rocky Mountain National Park, Colorado |
| | | Zan Rubin, Sara Rathburn and Ellen Wohl Geosciences Department, Colorado State University |
| | 3:00 | Geospatial Analysis of the Occurrence and Transport of Antibiotics in Irrigation Ditches and the Poudre River in Weld County |
| | | Cortney Cowley, Masih Akhbari, Masoud NegahbanAzar, Mazdak Arabi, and Kenneth Carlson Department of Civil and Environmental Engineering, Colorado State University |
| | 3:20 | Phosphorus Removal in Wastewater Treatment Lagoons Using Water Treatment Residuals |
| | | Qian Liang, Lucas Loetscher, Sybil Sharvelle, Kenneth Carlson Department of Civil and Environmental Engineering, Colorado State University |
| | | Mid-afternoon break |
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| March 24 | 4:00 am | Stream Restoration - Urban Hydrology - Wastewater Treatment |
| | | Chair: Professor Sybil Sharvelle Department of Civil and Environmental Engineering, CSU Cherokee Park Room - Lory Student Center |
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| | 4:00 | Graywater Application for Landscape Irrigation: Greenhouse Experiments |
| | | Alicia Shogbon and Sybil Sharvelle Department of Civil and Environmental Engineering, Colorado State University |
| | 4:20 | Anaerobic Digestion of Blackwater on the CSU Foothills Campus |
| | | Gallagher, Neal T. and Sharvelle, Sybil E. Department of Civil and Environmental Engineering, Colorado State University |
| | 4:40 | World-wide Search and Review of Advanced Sewerage-System Design and Technology |
| | | Kim LeMonde and Sybil Sharvelle Department of Civil and Environmental Engineering, Colorado State University |
| | 5:00 | Graywater Reuse: a Sustainable Water Management Strategy and its Effects on Soil Properties |
| | | Masoud Negahban Azar, Sybil Sharvelle, Larry Roesner and Chris Olson Department of Civil and Environmental Engineering, Colorado State University |
| | 5:20 | Evaluating Contaminant Removal Rates of Graywater Utilizing a Constructed Wetland Treatment System |
| | | Jesse Bergdolt and Sybil Sharvelle Department of Civil and Environmental Engineering, Colorado State University |