

# ALLEGRA KYRIA DA SILVA

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## EDUCATION

Yale University (New Haven, CT, USA) Ph.D., Environmental Engineering, 2008 (expected)  
M.S., Environmental Engineering, 2005  
Rensselaer Polytechnic Institute (Troy, NY, USA) B.S., Chemical Engineering, 1998 (Magna Cum Laude)

**LANGUAGES** English (native), Spanish (advanced), French (spoken: fluent, written: advanced)

## RESEARCH

PhD Candidate 2003 – present  
Chemical Engineering Dept: Environmental Engineering Program, Yale University, New Haven, CT, USA

- Interest: **impact of water and sanitation on public health in lesser-developed countries**
- Thesis: investigation of the environmental fate and transport of viruses causing gastroenteritis:
  1. Field work tracking viruses in sewage treatment  
Conducted in Brittany, France at the IFREMER Microbiology Lab (November 2005 – July 2006)
    - Viral concentration and RNA extraction
    - Real-time (quantitative) reverse-transcription polymerase chain reaction (qRT-PCR)
  2. Fundamental studies of virus adsorption and aggregation in a laboratory setting  
Conducted at Yale with collaboration at Baylor College of Medicine, Houston, TX (ongoing)
    - Recombinant virus (virus-like particles, VLPs) purification and characterization (protein concentration, endotoxicity, gel electrophoresis, Western blot, ELISA)
    - Quartz crystal microbalance with dissipation (QCM-D): adsorption kinetics
    - Dynamic light scattering (DLS): electrophoretic mobility, particle size, aggregation kinetics
    - Transmission electron microscopy (TEM): capsid morphology, aggregation state

## TEACHING

Teaching Fellow 2007  
Introduction to Environmental Engineering, Yale University, New Haven, CT, USA

- **Taught laboratory sections, held review sessions, and taught selected lectures.**

English instructor 2004-2005  
New Haven Literacy Program, New Haven, CT, USA

- **Taught spoken and written English** to Afghani, Vietnamese, and Senegalese refugees, some who had not yet held a pencil, others who held advanced degrees.

High School and Junior College Instructor 1998-2000  
Jesuit Volunteers International, Stann Creek Ecumenical College, Dangriga, Belize

- **Taught 3 Physics and 2 Computer classes.** Counseled 25 male adolescents. Co-directed drama, choir.

## INTERNATIONAL COLLABORATIONS

- Associate Fellow, Yale World Fellows Program – leadership training, global networking 2006
- El Rosario, Honduras – Engineers Without Borders village drinking water project 2005
- Cali, Colombia – thesis research on waste stabilization ponds for sanitation 2004

Project Manager 2001-2003  
Global Economy and Cultures Project, WTC, Georgetown University, Washington, DC, USA

- Managed the **Global Economy and Cultures Project**, a 5-year interdisciplinary global collaboration researching local cultures' interactions with economic globalization using a qualitative story-telling methodology. Organized conferences, created budget (\$300,000/year), and wrote grant proposals.

Project Manager 2000-2002  
International Access Corporation, Washington, DC, USA

- Developed and published *Washington Biotechnology Wire*, a biweekly news review providing strategic biotechnology industry information for Japanese business/government clients.
- Wrote industry reports (auto, biotech, nuclear energy) and organized technical exchange meetings.

## PUBLICATIONS

da Silva, A. K. ; Le Saux, J.C ; Parnaudeau, S. ; Pommepuy, M. ; Elimelech, M. ; and Le Guyader, F. S. (2007)  
"Removal of norovirus in wastewater treatment using real-time RT-PCR: different behavior of genogroup I and genogroup II," *Applied and Environmental Microbiology*, Vol. 73, No. 24, 7891-7897.

da Silva, A. K. ; Le Saux, J.C ; Parnaudeau, S. ; Pommepuy, M. ; Elimelech, M. ; and Le Guyader, F. S.  
"Norovirus removal and particle association in a waste stabilization pond system," in preparation.

da Silva, A. K. ; Estes, M. and Elimelech, M. "Deposition kinetics and aggregation of norovirus genogroup I Norwalk strain (GI.1) and II Houston strain (GII.4)," in preparation.

## SELECTED CONFERENCES

Third International Calicivirus Conference, Cancun, México 2007  
da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F.  
"Removal of norovirus genogroup I (GI) and genogroup II (GII) in wastewater treatment using real-time RT-PCR"

Int'l Water Association 14th Int'l Symposium on Health-related Water Microbio., Tokyo, Japan 2007  
da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F.  
"Removal of norovirus in wastewater treatment using real-time RT-PCR: different behavior of genogroup I (GI) and genogroup II (GII)"

French Society of Microbiology National Congress, Nantes, France 2007  
da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F.  
"Annual gastroenteritis outbreak in France: tracking norovirus GI & GII through sewage treatment"

Quartz Crystal Microbalance with Dissipation (QCM-D) World Conference, Boston, MA, USA 2006  
da Silva, A.K., Chen, K.L., Estes, M. K., and Elimelech, M.  
"Elucidating Adsorption Behavior of Norovirus and Fullerene Nanoparticles Using QCM-D"

American Chemical Society Annual Meeting, Washington, DC, USA 2005  
da Silva, A.K., Estes, M. K., and Elimelech, M.  
"Adsorption kinetics of recombinant norovirus nanoparticles to a quartz surface"

## FELLOWSHIPS AND AWARDS

US National Science Foundation Graduate Fellowship 2004 - 2007  
Yale University Fellowship, Yale University Faculty of Engineering Fellowship 2003 - 2008