Joshua S. Apte

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Current position

Assistant Professor (January 2015 – present)
Department of Civil, Architectural and Environmental Engineering
The University of Texas at Austin

Research area: Exposure to air pollution. Key interests: (i) sources and dynamics of atmospheric aerosols, (ii) measurement and modeling techniques for air pollution exposure assessment, (iii) health impacts of energy and transportation systems, (iv) environmental justice, air quality and environmental sustainability in low-income areas, (v) policies to protect climate and health.

Education

Postdoc	2014	**Lawrence Berkeley National Laboratory** Environmental Energy Technologies Division *Mentor:* Dr. Thomas W. Kirchstetter
Ph.D.	2013	**University of California, Berkeley** (Energy and Resources) Dissertation: "Human Exposure to Urban Vehicle Emissions" *Mentor:* Prof. William Nazaroff (Civil & Environmental Engineering)
M.S.	2008	**University of California, Berkeley** (Energy and Resources)
Sc.B.	2004	**Brown University** (Environmental Science, magna cum laude)

Fellowships, awards and honors

- One article on most read list, *Environmental Science & Technology* (Apte et al., 2015)
- ITRI-Rosenfeld Postdoctoral Fellowship, Lawrence Berkeley National Lab (2013-15)
- Philomathia Graduate Fellowship in the Environmental Sciences, UCB (2013)
- Outstanding Graduate Student Instructor Award, UC Berkeley (2012-13)
- Chang-Lin Tien Graduate Fellowship in the Environmental Sciences, UCB (2012-13)
- Fulbright-Nehru Fellowship to India, US Department of State (2010)
  Host: Indian Institute of Technology – Delhi
- EPA STAR (Science and Technology to Achieve Results) Fellowship, US EPA (2009–13)
- Honorable Mention, US NSF Graduate Research Fellowship Program (2008)
- MOT/UNIDO Bridging the Divide Fellowship, UCB (2007)
- Foreign Language and Area Studies Fellowship in Hindi, UCB (2006–07, 2007–08)
- Royce Fellowship, Brown University (2003–04)

Peer-reviewed journal articles

13. Brauer M, Freedman G, Frostad J, van Donkelaar A, Martin R, Dentener F, van Dingenen, Rita, Estep K; Amini H, Apte JS, Balakrishnan K, Barregard L, Broday D, Feigin V, Ghosh S, Hopke P, Knibbs L, Kokubo Y, Liu Y, Ma S, Morawska L, Texcalac Sangrador J-L, Shaddick G, Anderson HR, Vos T, Forouzanfar M, Burnett R, Cohen A. Ambient air pollution

exposure estimation for the Global Burden of Disease 2013. 2015. Accepted, *Environmental Science & Technology*. doi: 10.1021/acs.est.5b03709.

12. Marshall JD, Apte JS, Coggins JS, Goodkind AL. 2015. Blue skies bluer? In press, *Environmental Science & Technology*. doi: 10.1021/acs.est.5b03154.

11. Apte JS, Marshall JD, Cohen AJ, Brauer M. 2015. Addressing global mortality from $PM_{2.5}$. *Environmental Science & Technology* 49, 8057-8066.

10. Tang NW, Apte JS, Martien PM, Kirchstetter TW. 2015. Measurements of black carbon emissions from in-use diesel-electric passenger locomotives. *Atmospheric Environment* 115, 295-303.

9. Su J, Apte JS, Lipsitt J, Garcia-Gonzales, DA, Beckerman BS, de Nazelle A, Texacalac-Sagrandor J-L, Jerrett M. 2015. Identification of population potentially exposed to traffic in seven world cities. *Environment International* 78, 82-89.

8. Fantke P, Jolliet O, Evans JS, Apte JS, Cohen AJ, Hänninen OO, Hurley F, Jantunen MJ, Jerrett M, Levy JI, Loh MM, Marshall JD, Miller BG, Preiss P, Spadaro JV, Tainio M, Tuomisto JT, Weschler CJ, McKone TE. 2015. Health effects of fine particulate matter in life cycle impact assessment: Findings from the Basel Guidance Workshop. *International Journal of Life Cycle Assessment*, 20, 276-288.

7. Krzyzanowski M, Apte JS, Bonjour SP, Brauer M, Cohen AJ, Prüss-Üstün A. 2014. Air pollution in the megacities. *Current Environmental Health Reports* 1, 185-191.

6. Saraswat A, Apte JS, Kandlikar M, Brauer M, Henderson SB, Marshall JD. 2013. Spatiotemporal land use regression models of fine, ultrafine and black carbon particulate matter in New Delhi, India. *Environmental Science & Technology,* 47, 12903–12911.

5. Apte JS, Bombrun E, Marshall JD, Nazaroff WW. 2012. Global intraurban intake fractions for air pollutants from vehicles and other distributed sources. *Environmental Science & Technology* 46, 3415–3423.

4. Grieshop AP, Boland D, Reynolds CCO, Gouge B, Apte JS, Rogak S, Kandlikar M. 2012. Modeling air pollutant emissions from Indian auto-rickshaws: model development and implications for fleet emission rate estimates. *Atmospheric Environment* 50, 148-156.

3. Apte JS, Kirchstetter TW, Reich AH, Deshpande SJ, Kaushik G, Chel A, Marshall JD, Nazaroff WW. 2011. Concentrations of fine, ultrafine, and black carbon particles in auto-rickshaws in New Delhi, India. *Atmospheric Environment* 45, 4470-4480.

2. Sager J, Apte JS, Lemoine DM, Kammen DM. 2011. Reduce the growth rate of light duty vehicle travel to meet 2050 global climate goals. *Environmental Research Letters* 6, 024018.

1. Coffey B, Borgeson S, Selkowitz S, Apte JS, Mathew P, Haves P. 2009. Towards a very low-energy building stock: modeling the US commercial building sector to support policy and innovation planning. *Building Research & Information* 37, 610-624.

Reports and other

Jerrett M, Su J, Apte JS, Beckerman B. 2010. Estimates of Population Exposure to Traffic-Related Air Pollution in Beijing, China and New Delhi, India. Report to Health Effects Institute. Boston, MA.

Guttikunda SK and Apte JS. 2009. Monitoring and Mapping Air Pollution: A One Day Experiment in Delhi, India. SIM-Air Series working paper 29, available from: http://www.urbanemissions.info/sim-series-29.html.

Apte JS. 2008. Population Exposure to Vehicular Emissions in Megacities. MS Paper, Energy and Resources Group. Berkeley, CA.

Apte JS, Fuller MC, Gopal AR, Lindgren K. 2007. Developing the Means for the Use of Modern Lighting: How Can WLED Technology Bring High Quality, Affordable Light to India's Poor? Final report to Bridging the Divide Fellowship Program, Berkeley, CA.

Apte JS and Arasteh D. 2006. Window-Related Energy Consumption in the US Residential and Commercial Building Stock. Lawrence Berkeley National Laboratory Technical Report LBNL-60146, Berkeley, CA.

Apte JS, Arasteh D, Kohler JC. 2006. Save Energy with Superwindows. *Window and Door Magazine.* March 2006 issue.

Apte JS. 2004. The Role of Residential Window Technology in US Carbon Emissions. Honors Thesis, Center for Environmental Studies, Brown University, Providence, RI.

Teaching

University of Texas at Austin. Dept. of Civil, Architectural and Environmental Engineering
CE397: Climate Change Mitigation. Fa2015 (Graduate)
ARE370: Design of Energy Efficient and Healthy Buildings. Sp2015 (Undergraduate)

UC Berkeley. Graduate student instructor, Dept. of Civil and Environmental Engineering
CEE107: Climate Change Mitigation. Fa2012, Sp2012, Sp2011.

Brown University. Undergraduate student instructor, Center for Environmental Studies
ES145: Ecosystem Analysis. Fa2003. (Field and lab course in forest ecology)
ES11: Introduction to Environmental Studies. Fa2001.

Supervision of graduate students and postdocs

University of Texas at Austin. S Chambliss [MS-PhD; 2015 -], S Gani [MS-PhD; 2014 -], K Messier [Postdoc, 2015 -], R Cesa (née Posa) [MS; 2014-2015].

Invited presentations

Apte JS. "Modeling Urban Air Quality at High Spatial Resolution." Tech Talk lecture series, Google, Inc., Mountain View, CA, November 9, 2015.

Apte JS. "Air Pollution, Transportation and Health in Indian Cities." Symposium on Infrastructure in India, UCLA, Los Angeles, CA. May 16, 2015.

Apte JS. "Air Pollution and Health: Indian Cities in Global Context." US State Department, Washington, DC. May 11, 2015.

Apte JS. "Addressing Mortality from Ambient $PM_{2.5}$: India in Global Context." Public Health Foundation of India, Gurgaon, India. March 19, 2015.

Apte JS. "On-Road Exposure to Traffic Air Pollution." Anil Agarwal Dialogue, Centre for Science and Environment, New Delhi, India. March 12, 2015.

Apte JS. "Air Pollution In Indian Cities." American Embassy School, New Delhi, India. November 21, 2014.

Apte JS. "Air Quality in India." Indo-US Technology Summit, Greater Noida, India. November 18, 2014.

Apte JS. "Air Pollution in Indian Cities: Current Status and Future Prospects." US Embassy, New Delhi, India. November 7, 2014.

Apte JS. "Air Pollution in Indian Cities." Briefing to US Ambassador Nancy Powell, New Delhi, India. February 19, 2014.

Apte JS . "Frontiers in Urban Exposure Science." Department of Civil Engineering, Indian Institute of Technology, Kanpur. Feb 13, 2014.

Apte JS. "Air Pollution in Indian Cities: Current Status and Prospects for a Cleaner Future." US Agency for International Development, Feb 10, 2014. New Delhi, India.

Apte JS. "Human Exposure to Vehicle Emissions in Indian Cities." Policy Conclave of the India-California Air Pollution Mitigation Project, Feb 04, 2014. New Delhi, India.

Apte JS. "High Impact Strategies to Control the Health and Climate Consequences of Urban Infrastructure Systems." Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Feb 25, 2013. Berkeley, California.

Apte JS. "Frontiers in Urban Exposure Science." Department of Civil, Architectural and Environmental Engineering, University of Texas at Austin, February 11, 2013.

Apte JS. "On-Road Exposure to Particulate Matter in New Delhi, India." Department of Civil Engineering, Indian Institute of Technology, Delhi, August 14, 2012. New Delhi, India.

Apte JS. "Exposed in the City: Global Urban Air Pollution Exposure and Health Models for Vehicle Emissions." International Council on Clean Transportation, June 1, 2012. San Francisco, CA.

Apte JS. "Hold Your Breath! On-Road Exposure to Particulate Matter in New Delhi, India." Guest lectures in CE3501 ("Introduction to Environmental Engineering") and CE5561 ("Air Quality Engineering"). University of Minnesota, Department of Civil Engineering, April 19, 2012. Minneapolis, MN.

Apte JS. "Commuter Exposure to Air Pollution in New Delhi Vehicles." Centre for Science and Environment, August 31, 2011. New Delhi, India.

Apte JS. "Transportation and Air Quality in Developing World Cities." Chevron Corporation, October 12, 2010. San Ramon, CA.

Apte JS. "Transport and Sustainability: Human Exposure to Vehicular Emissions." Indian Institute of Technology, March 26, 2009. Roorkee, India.

Apte JS, Arasteh D, Homan G, Selkowitz SE. "National Window Energy Savings Model: Application to Energy Star Criteria Revisions." US Department of Energy, August 13, 2008. Washington, DC.

Apte JS. "Exposure to Vehicular Emissions in Developing World Megacities." Indian Institute of Technology, March 27, 2008. Roorkee, India.

Conference presentations

Krasowsky T, Tang N, Daher N, Apte J, Sioutas C, Martien P, Ban-Weiss G, Kirchstetter TW. "Measurement of In-Use Freight and Passenger Locomotive Black Carbon Emissions in California." Poster presentation at annual meeting of American Association for Aerosol Research. October 12-16, Minneapolis, MN.

Apte JS, Gani S, Steyn D, Tripathi SN. "Episodic Ambient $PM_{2.5}$ in Beijing and Delhi." Oral presentation at annual meeting of American Association for Aerosol Research. October 12-16, Minneapolis, MN.

Apte JS, Marshall JD. "Addressing Global Mortality from $PM_{2.5}$." Oral presentation at annual meeting of American Association for Aerosol Research. October 20-24, Orlando, FL.

Apte JS, Marshall JD. "Addressing Global Mortality from $PM_{2.5}$." Poster presentation at annual meeting of International Society for Environmental Epidemiology. August 25-28, 2013, Seattle, WA.

Apte JS, Marshall JD, Nazaroff WW. "Inhalation Intake of Urban Emissions of Semivolatile Organic Compounds from Vehicles." Poster presentation at annual meeting of American Association for Aerosol Research. September 30 – October 4, Portland, OR.

Apte JS, Goodkind AL, Coggins JS, Marshall JD. "Blue Skies Bluer? Puzzling Implications of a Possible Supra-Linear Relationship Between PM Exposure and Mortality." Poster presentation at annual meeting of International Society for Environmental Epidemiology. August 18 – 22, 2013, Basel, Switzerland.

Apte JS, Marshall JD, Nazaroff WW. "Intraurban Intake Fraction of Vehicle Emissions: Asian Cities in Global Context." Oral presentation at Better Air Quality 2012 meeting, December 5-7 2012, Hong Kong.

Apte JS. "Health Impact Modeling: Linking Emissions Scenarios with Health Outcome Estimates." Workshop presentation at Better Air Quality 2012 meeting, December 5-7, 2012, Hong Kong.

Lippsit J, Su J, Jerrett M, Apte JS, de Nazelle A, Beckerman B, Texcalac. "Estimates of Population Exposure to Traffic-Related Air Pollution in Asia, North America and Europe." Poster presentation at annual meeting of International Society for Environmental Epidemiology. August 26-30, 2012, Columbia, SC.

Apte JS, Marshall JD, Nazaroff WW. "Inhalation Intake Fraction for Vehicle-Attributable Organic $PM_{2.5}$." Oral presentation at annual meeting of American Association for Aerosol Research. October 8–12, 2011, Minneapolis, Minnesota.

Apte JS, Bombrun E, Marshall JD, Nazaroff WW. "Intake Fraction of Nonreactive Ground-Level Pollutant Emissions in 3,646 Global Urban Areas." Poster presentation at annual meeting of American Association for Aerosol Research. October 3–7, 2011, Orlando, Florida.

Apte JS, Marshall JD, Nazaroff WW." Transient Exposure to Vehicle Exhaust Plumes inside New Delhi Auto-Rickshaws." Poster presentation at annual meeting of International Society for Environmental Epidemiology. September 13–16, 2011, Barcelona, Spain.

Maddalena R, Ortiz AC, Lee W-Y, Russell M, Apte JS, Apte MG. "Identifying Sources of Volatile Organic Compounds and Aldehydes in a High Performance Building." Oral presentation at Indoor Air meeting. June 5–10, 2011, Austin, TX.

Su JG, Jerrett M, Lipsitt J, Apte JS, Beckerman B, de Nazelle A. "Estimates of Population Exposure to Traffic-Related Air Pollution in Asia, North America and Europe." Poster presented at Health Effects Institute Annual Conference. May 1–3, 2011, Boston, MA.

Apte JS, Kirchstetter TW, Marshall JD, Nazaroff WW. "An Instrumentation Package for Measuring Commuter Exposure to Vehicle Exhaust Pollutants in New Delhi, India." Presented at AWMA Symposium on Air Quality Measurement Methods and Technology. November 2–4, 2010. Los Angeles, CA.

Apte JS, Kirchstetter TW, Marshall JD, Nazaroff WW. "Commuter exposure to vehicle exhaust plumes in New Delhi, India." Symposium presentation at ISES/ISEE joint meeting. August 28–September 1, 2010. Seoul, South Korea.

Apte JS, Bombrun E, Marshall JD, Nazaroff WW. "Intake Fractions for Vehicle Emissions in 88 Worldwide Urban Areas." Poster presented at ISES/ISEE joint meeting. August 28–September 1, 2010. Seoul, South Korea.

Apte MG, Apte JS. "A Study of the Effectiveness of Indoor Plants for Removal of Volatile Organic Compounds in Indoor Air in a Seven-Story Office Building." Poster presented at ISES/ISEE joint meeting. August 28-September 1, 2010. Seoul, South Korea

Selkowitz SE, Arasteh D, Apte JS, Lafrance M. "Zero Energy Windows." Conference paper presented at ACEEE Summer Study on Building Energy Efficiency. August 13–18, 2006. Asilomar, CA.

Apte JS, Arasteh D, Huang YJ. "Future Advanced Windows for Zero Energy Homes". Conference paper presented at annual meeting of ASHRAE. June 28–July 3, 2003. Kansas City, MO.

Professional experience

Technical Advisor and Consultant, International Council on Clean Transportation, San Francisco, CA. 2011-2013.

Global population exposure modeling for urban vehicle emissions; development of global health risk assessment models for urban air quality.

Research Associate, Building Technologies Program, Lawrence Berkeley National Laboratory, Berkeley, CA. 2004-06 (full-time), 2006-2013 (part-time).

Regional and national energy savings potential analysis for energy efficient building technologies; building energy simulation using DOE-2.

Graduate Student Researcher, Energy Biosciences Institute, UC Berkeley. 2008-09.

Operations Consultant. Client: WaterHealth International. Vijayawada, India. 2005.

Independent Consultant. Berkeley, CA. 2005-06.

Designed and performed research on the energy savings potential of high-efficiency products for the US residential lighting market. Client: Wal-Mart Stores, Inc.

Undergraduate Research Assistant, Building Technologies Program, Lawrence Berkeley National Laboratory, Berkeley, CA. 2002-04.

Professional society affiliations

American Association for Aerosol Research, International Society for Exposure Science, International Society for Environmental Epidemiology, Association of Environmental Engineering Science Professors

Professional service

Member, ambient air pollution expert group, 2013 Global Burden of Disease study

Peer reviewer for the following journals: *Environmental Science & Technology, Atmospheric Environment*, *Indoor Air, Aerosol Science & Technology, Journal of the Air & Waste Management Association, Risk Analysis, Science of the Total Environment,* and *Journal of Transportation and Land Use*.

Guest instructor, *Engineers for a Sustainable World* web course on climate change (2015)
Session co-chair ("Traffic-related air pollution"), Int. Soc. for Environ. Epidemiol. (08.2013)
Session co-chair ("Indoor Aerosols"), American Assn. for Aerosol Research (10.2012)

Selected media coverage of research group activities

"Google Street View cars to start measuring air pollution," *The Onion,* 03 Aug 2015
"Some Google Street View cars now track pollution levels," *NPR*, 29 July 2015
"India and China need cleaner air just to keep death rate steady," *Associated Press,* 16 Jun 2015
"New Delhi has world's most toxic air," *CNN*, 13 April 2015
"Indians lose billions of life years to pollution," *The New Scientist,* 25 Feb 2015
"US Scientist runs pollution check on Capital in an auto," *Hindustan Times,* Delhi, 23 Feb 2015

"US embassies to monitor air quality," *Voice of America,* 18 Feb 2015
"Delhi wakes up to an air pollution problem it cannot ignore, " *New York Times,* 15 Feb 2015
"Delhi air is often more polluted than Beijing's," *New York Times*, 15 Feb 2015
"Experts bank on US air quality alert," *Times of India,* New Delhi, 28 January 2015
"India's air pollution problem," National Public Radio *Marketplace,* 23 January 2015
"Pollution Patrol," *Nature* 517, p. 136-138, 08 January 2015
"Study offers new insight into New Delhi's air pollution woes," *Deutsche Welle*, 2 Dec 2014
"DIY pollution tests challenge government data," *Times of India,* New Delhi, 2 Dec 2014
"American does reality check on road," *Times of India*, New Delhi, 27 November 2014
"Rickshaw research reveals extreme Delhi pollution," *Associated Press*, 26 November 2014

Foreign languages

German: conversationally fluent| Hindi: proficient | Spanish: proficient