**Jess Toby Gersony** E: [JGersony@g.harvard.edu](mailto:JGersony@g.harvard.edu) P: 610-937-4760 *Education*  
2015-Present PhD Student in Organismic and Evolutionary Biology at Harvard University, MA  
 Advisor: Dr. Noel Michele Holbrook  
 Thesis title: Carbon and water dynamics in mature forest trees  
2011-2014 Columbia University, New York, NY  
 BA in Ecology, Evolution, and Environmental Biology  
2010-2011 Oberlin College, Oberlin, OH

*Fellowships and Awards*  
2019 Travel award for Plant Vascular Biology Conference from NSF ($768)  
2019 Travel award for XIM4 Conference from the Federation of European Societies of Plant Biology  
 ($500)  
2018 Award for registration at Gordon Research Conference on Multi-scale Vascular Plant Biology   
 ($1,200)  
2018 Certificate of Distinction and Excellence in Teaching, Bok Center, Harvard University  
2017 Travel award for IPhloem conference ($450)  
2017 Certificate of Distinction and Excellence in Teaching, Bok Center, Harvard University  
2015-2020 National Science Foundation Graduate Research Fellowship ($138,000)  
2015 Harvard University Center for the Environment Skaff Family Environmental Graduate Fellowship   
 ($5,000)  
2014, 2013 Deans list, Columbia University  
2010 John Frederick Oberlin Scholarship: $15,000/year *Publications*\* co-first author   
+ corresponding author   
# undergraduate student mentee

(9) **Gersony, J.,** Hochberg, U., Rockwell, F., #Park, M., and Holbrook, N. *Accepted.* Leaf carbon export and non-structural carbohydrates in relation to diurnal water dynamics in mature oak trees. *Plant Physiology.  
  
(*8) Cardoso, A., Billon, LM., Fanton Borges, A., Fernández-de-Uña, L., **Gersony, J.,** Güney, A., Johnson, K., Lemaire, C., Mrad, A., Wagner, Y., and Petit, G. *Accepted.* XIM 4 conference report: New developments in understanding plant water transport under drought stress. *New Phytologist.*  
(7) Prager, C.M., Boelman, N.T., Eitel, J.U., **Gersony, J.T.,** Greaves, H.E., Heskel, M.A., Magney, T.S., Menge, D.N., Naeem, S., Shen, C. and Vierling, L.A., 2020. A mechanism of expansion: Arctic deciduous shrubs capitalize on warming-induced nutrient availability. *Oecologia*, pp.1-15.  
  
(6) Missirian, A., Frank, E.G., **Gersony, J.T**., Wong, J.C. and Naeem, S., 2019. Biodiversity and thermal ecological function: The influence of freshwater algal diversity on local thermal environments. *Ecology and evolution*, *9*(12).

(5) Rockwell, F., **Gersony, J.,** and Holbrook, N. 2018. Where does Munch flow begin? Sucrose transport in the pre-phloem path. *Current opinion in plant biology, 43, 101-107.*(4) Savage, J., Beecher, S., Clerx, L., **Gersony, J.,** Knoblauch, J., Losada, J., Jensen, K., Knoblauch, M., and Holbrook, N. 2017. Maintenance of carbohydrate transport in tall trees. *Nature Plants, 3(12), 965.*(3) Hochberg, U., Windt, C., Ponomarenko, A., Zhang, Y., **Gersony, J.,** Rockwell, F., and Holbrook, N. 2017. Stomatal closure, basal leaf embolism and shedding protect the hydraulic integrity of grape stems. *Plant Physiology, pp-01816.*(2) **Gersony J. T.,** Prager, C., Boelman, N., Eitel, J., Gough, L., Greaves, H., Griffin, K., Magney, T., Sweet, S., Vierling, L., and Naeem, S. 2016. Scaling thermal properties from the leaf to the canopy in the Alaskan arctic tundra. 2016. *Arctic, Antarctic and Alpine Research, 48(4), 739-754.*(1) Taylor, B., Patterson, A., Ajayi, M., Arkebauer, R., Bao, K., Bray, N., Gauthier, P., **Gersony, J.,** Gibson, R., Guerin, M., Lavenhar, S., Leland, C., Lemordant, L., Liao, W., Melillo, J., Oliver, R., Prager, C., Schuster, W., Schwartz, N., Shen, C., Terlizzi, K., Griffin, K. 2016. Growth and physiology of a dominant understory shrub, *Hamamelis virginiana,* following canopy disturbance in a temperate hardwood forest. *Canadian Journal of Forest Research, 47*(2), 193-202.  
*Publications in preparation*  
(1) **Gersony, J.,** McClelland, A., and Holbrook, N. *To be submitted to Nature Plants Spring 2020.* Raman spectroscopy sheds light on phloem functioning of mature trees and challenges passive loading.  
  
(2) \*Rockwell, F., \***Gersony, J.,** Manandhar, A., Dumais, J., and Holbrook, N. *To be submitted to Functional Plant Biology Summer 2020.* Uncovering how the shrub Nolana mollis thrives in the world driest desert.  
  
(3) #Park, M., **+Gersony. J**., Rockwell, F., and Holbrook, N. *To be submitted to Northeastern Naturalist* *in 2020.* Diurnal patterns of leaf carbon export from 5 deciduous tree species in elevated CO2 conditions.  
  
(4) **Gersony, J.,** Blumstein, M., Holbrook, N., Chamberlain, C., Galiano, L., Lloret, P., Mencuccini, M., Martinez-Villalta, J., and Sala, A. *To be submitted end of 2020.* The role of non-structural carbohydrates in osmotic regulation and phloem loading across various climatic regimes.

*Conference Oral Presentations and Posters*  
(7) **Gersony, J.,** Hochberg, U., Rockwell, F., #Park, M., Gauthier, P., and Holbrook, N. Carbon export patterns in relation to seasonal and diurnal carbon and water dynamics in red oak leaves. Xylem International Meeting, Padova, Italy, 2019. Oral presentation.  
  
(6) **Gersony, J.,** Hochberg, U., Rockwell, F., #Park, M., Gauthier, P., and Holbrook, N. Carbon export patterns in relation to seasonal and diurnal carbon and water dynamics in red oak leaves. Plant Vascular Biology Conference, Asilomar, CA, 2019. Oral presentation.  
  
(5) **Gersony, J.,** McClelland, A., and Holbrook, N. Using Raman spectroscopy and partial least square regression models to quantify sugar concentrations in leaves from the whole tissue to the sub-cellular level. Eigenvector University Workshop, Seattle, WA, 2019. Poster presentation.  
  
(4) **Gersony, J.,** Hochberg, U., Rockwell, F., and Holbrook, N. The relationship between water potential and phloem loading in *Quercus rubra.* Gordon Research Conference, Mt. Snow, VT, 2018. Poster presentation.  
  
(3) **Gersony, J.,** Hochberg, U., Rockwell, F., and Holbrook, N. The relationship between water potential and phloem loading in *Quercus rubra*. IPhloem, Copenhagen, Denmark. 2017. Invited oral presentation.  
  
(2) **Gersony, J.,** Hochberg, U., Rockwell, F., and Holbrook, N. The relationship between water potential and phloem loading in *Quercus rubra*. Xylem International Meeting, Bordeaux, France. 2017. Poster presentation.  
  
(1) **Gersony J.,** Shannan K. Sweet, Kevin L. Griffin, and Natalie T. Boelman. “Greater shrub dominance enhances canopy nitrogen concentration in the arctic tundra.” Columbia University Environmental Senior Thesis Poster Session 2014. Poster presentation.

*Research techniques*

Over the past 8+ years I have become proficient using the following field and lab tools/techniques:

* *Li-Cor 6400/6800:* Net assimilation, respiration, transpiration, stomatal conductance, A/Ci curves and plot level fluxes using a customized chamber
* *Pressure chamber:* Leaf and stem water potential
* *Thermocouple psycrometers:* Soil, leaf, stem water and/or solute potential
* *Campbell Dataloggers, anemometers, light (PAR) sensors:* Micro-meteorological measurements
* *Osmometer:* Leaf and solution solute potential
* *FLIR infrared camera:* Leaf/plot level temperature
* *UAV thermography:* Plot level temperature
* *Scanning electron microscopy and light microscopy:* Leaf anatomy
* *C:N analyzer:* Leaf, berry, and catkin C and N content
* *Bomb calorimetry:* Construction cost of leaves, berries and catkins
* *Caviscan:* Leaf cavitation (PLC)
* *Enzymatic assays:* Leaf non-structural carbohydrates, phloem carbon movement rates
* *Fluorimetry:* Leaf fluorescence (Fv/Fm, NPQ, Yield)
* *Raman Spectroscopy:* Cellular sugar concentrations
* *Field spectroradiometer (FieldsSpec3):* Plot-level NDVI
* *Additional vegetation classification strategies:* LAI, % cover of vegetation, phenological stages, rooting profiles

*Professional Experiences*2016-2018 Chair of the Gordon Research Seminar on Multi-Scale Vascular Plant Biology  
2014-2015 Research Technician in Ecology, Evolution, and Environmental Biology, Columbia University,  
 NY  
 Supervisor: Dr. Shahid Naeem

*Teaching and Outreach*  
Spring 2020 Co-instructor for a weekly lab skills course for Boston Public School students through Harvard Ed   
 Portal  
Fall 2019 Volunteer lecturer for Boston Day and Evening Academy high school students during their 2-day   
 Ecology session at the Arnold arboretum  
Summer 2019 Peer Mentor for one of Harvard’s E3 REU students  
Summer 2019 Guest lecturer for Harvard Forest’s REU students  
Fall 2018 Teaching Assistant in Plants and Climate course taught by Dr. Holbrook  
Fall 2018 Co-teacher and creator of an evening-length course for HS Biology Teachers through Harvard Life   
 Science Outreach  
2017-2019 Mentor for a Harvard Undergraduate for her thesis research  
Summer 2017 Co-writer for a YouTube video on forests and climate change with Molly Edwards through her   
 channel ScienceIRL (2,000+ subscribers)  
Spring 2016 Teaching Assistant for Harvard Life Science Outreach’s Plant Biology one-day course for High   
 School Students  
Spring 2016 Teaching Assistant in Biology of Plants course taught by Dr. Holbrook and Dr. Elena Kramer