



Hui Henry TENG

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Biography

Henry Teng joined Tianjin University in 2018 and is currently a professor in the Institute of Surface Earth System Science at TJU. Prior to that he was on the faculty of the George Washington University where he started his academic career in 2000 as a member of the Geology and, later on, Chemistry Department. He served as directors of Environmental Resource Policy program and Environmental Green Chemistry program at GWU, and expert program director in the National Science Foundation.

He was a Siyuan Lecturer Professor at Nanjing University from 2002 to 2016, and a JSPS fellow at the Hokkaido University in 2016-2017.

Henry received his BS from Nanjing University (China), MS from Temple University in Philadelphia, and PhD from Georgia Institute of Technology. Before completing his education, Henry worked as assistant engineer in the Coal Mining Research Institute of China, visiting scholar in Lawrence Livermore National Laboratory, and finally postdoctoral staff in Argonne National Laboratory.

Henry's teaching portfolios include Environmental Geology, Science and Environment, Geochemistry, Environmental Science, Environmental Chemistry of Air/Water/Soil, and Advanced Geochemistry. His research interests lie in the general area of mineral surface geochemistry (including bio-mediated interfacial processes) but particularly in those related to the thermodynamics and kinetics of mineral crystallization and dissolution. This research field requires multidisciplinary effort from chemistry, geology, biology, environmental science, and materials science. Henry is recognized as one of the pioneer workers and leaders in quantifying the behavior of mono-molecular layers of calcite during crystallization and dissolution. Henry was recently awarded a NSFC key project (funding starts Jan, 2019) to investigate mineral effects on microbes and exoenzymes in soil environment.

Henry is a frequent reviewer/panelist for NSF, DOE, AAAS, ACS, and other funding agencies such as US Civilian Research and Development Foundation, Foundation for Fundamental Research on Matter (Netherlands), and Hong Kong Research Council, and many scientific journals including Science, Nature and its series, PNAS, JACS, and Geology. He currently sits on the editorial board of PLoS ONE and the Open Geology Journal.

Academic Honors & Awards

2016.09 : JSPS Fellow
2005.01 : 杰青B
1999.12 : American Mineralogist Best Paper
1999.04 : Georgia Tech Research Excellence

Education/Employment

1994.09~1999.06, Georgia Institute of Technology, Ph.D.,
1991.09~1994.06, Temple University, M.S.,
1982.06~1991.09, Central Coal Mining Research Institute, PRC, Research engineer.,
1978.09~1982.06, Nanjing University, B.S.,

Research

Mineralogical effect on microbial activities
Role of amorphism in crystallization
Ambient mineralization of phyllosilicates

Research Projects

- (1) 2019.01~2023.12, Mineralogical and Geochemical Effects on the activity and stability of Interface-bound microbes and soil exoenzymes, PI, NSFC,.
- (2) 2013.06~2014.06, Studies of Fungus-Mediated Dissolution of Serpentine Group Minerals – Effects of Mineral Crystal Structure, Microbial Metabolites, Biomechanical Forces, PI, GWU-Smithsonian Institute,.
- (3) 2005.07~2006.06, Junior scholar fund, PI, GWU,.
- (4) 2005.01~2008.01, Anisotropy of interfacial reactions on mineral surfaces, 杰青B, NSFC,.
- (5) 2001.09~2003.08, Fundamental Energetics and Kinetics of Organic-Directed Carbonate Mineralization, PI, Petroleum Research Fund, American Chemical Society,.
- (6) 2001.06~2002.05, The Role of Mineral Surface Structures in the Origin of Amino Acid homochirality, PI, University Facility Fund, the George Washington University,.

Teaching

Environmental Geology; Science and Environment; Geochemistry; Environmental Science; Environmental Chemistry of Air/Water/Soil; Advanced Geochemistry

Selected Publications

- (1) Zhu, J., Xian, H., Lin, X., Tang, H., Du, R., Yang, Y., Zhu, R., Liang, X., Wei, J., Teng, H.H. and He, H., 2018, Surface structure-dependent pyrite oxidation in relatively dry and moist air: Implications for the reaction mechanism and sulfur evolution., *Geochimica et Cosmochimica Acta*, 228, 42-61,.
- (2) Kawano, J. and Teng, H. H., 2017, Non-classical pathway of crystal growth in solutions, *Jap Assoc. Crystal Growth*, 44, 17-24,.
- (3) Li, Z., Liu, L., Chen, J., and Teng, H.H., 2016, Cellular dissolution at hypha-and spore- A composite reactor with wetted-wall column for mineral carbonation study in three-phase systems mineral interfaces revealing unrecognized mechanisms and scales of fungal weathering, *Geology*, 44(4), 319-322,.
- (4) M, Xu J, and Teng HH, 2015, Evolution of Calcite Growth Morphology in the Presence of Magnesium: Implications to the Dolomite Problem, *Geochimica et Cosmochimica*, 172, 55-64,.
- (5) Hong M and Teng HH, 2014, Implications of Solution Chemistry Effects: Direction-Specific Restraints on the Step Kinetics of Calcite Growth, *Geochimica et Cosmochimica Acta*, 115, 228-239,.
- (6) Xu J, Yan C, Konishi H, Zhang FF, Xu H, Teng HH, 2013, Testing the cation-hydration effect on the crystallization of Ca-Mg-CO₃ systems, *PNAS*, 110, 17750-17755,.
- (7) Teng HH, 2013, How Ions and Molecules Organize to Form Crystals, *Elements*, 9, 189-194,.
- (8) Hu Q, Zhang J, Teng HH, Becker U, 2012, Growth process and crystallographic properties of ammonia-induced vaterite, *Am. Mineralogist*, 97, 1437 – 1445,.
- (9) Fan C and Teng HH, 2012, Crystallization and dissolution of gypsum in, "Gypsum: Properties, Production, and Application" ed. Delia H. Sampson, Nova Science Publishers, Hauppauge, New York, pp 111-130,.
- (10) Xu J, Fan C, Teng HH, 2012, Calcite Dissolution Revisited: Reaction Kinetics in View of Gibbs Free Energy, Dislocation Density, and pCO₂, *Chemical Geology*, 322-323, 11-18,.