

## CURRICULUM VITAE

Teng-fong WONG (黃庭芳)

### *Present Position:*

Research Professor, Department of Geosciences  
Earth and Space Science Building  
Stony Brook University  
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Emeritus Professor, Department of Earth and Environmental Sciences  
The Chinese University of Hong Kong  
Shatin, Hong Kong SAR, China  
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Research Associate, Department of Civil & Environmental Engineering  
University of California, Irvine  
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### *Education:*

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| 1976-80 | Massachusetts Institute of Technology<br>Ph.D. (Geophysics)                  |
| 1973-76 | Harvard University<br>M.S. (Applied Mechanics)                               |
| 1970-73 | Brown University<br>Sc.B. (Applied Mathematics)<br>Magna cum laude, Sigma Xi |

### *Employment:*

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| <i>The Chinese University of Hong Kong</i>                             |   |
| 2020 -   | Emeritus Professor  |
| 2020-2023  | Research Professor  |
| 2013-2019  | Professor and Founding Director, Earth System Science Programme, Faculty of Science |
| <i>Stony Brook University</i>  |   |
| 2015 -   | Professor Emeritus/ Research Professor, Geosciences                                 |
| 1992-2015  | Professor, Department of Geosciences  |
| 2004-2015  | Affiliated Professor, Department of Mechanical Engineering                          |
| 2004-2007  | Chair, Department of Geosciences  |
| 1998-2001  | Associate Dean of the Graduate School   |
| 1986-1992  | Associate Professor   |
| 1982-1986  | Assistant Professor   |
| <i>Department of Earth, Atmospheric and Planetary Sciences, M.I.T.</i> |   |
| 1981-1982  | Postdoctoral Associate  |

### *Professional Experience and Awards:*

Member, Committee on fracture in compressive stress fields, National Materials Advisory Board, 1981-83.  
Visiting fellow, Research School of Earth Sciences, The Australian National University, 1988.  
Visiting professor, Department of Earth, Atmospheric, and Planetary Sciences, M.I.T., 1989.  
Associate editor, *Journal of Geophysical Research*, 1989-92.

Visiting scientist, Geological Institute, Swiss Federal Institute of Technology, Zurich, 1990, 1996.  
 Consulting expert panel, DOE Waste Isolation Pilot Project, 1993.  
 NSF grants review panel on the Northridge Earthquake, 1994.  
 Review panel for U.S. Rock Mechanics Annual Awards, 1992, 1995.  
 Review panel, DOE Laboratory Technology Research Program, 1997.  
 Visiting professor, University of Science and Technology, China, 1999.  
 Chair, Physical Properties of Earth Materials Committee, American Geophysical Union, 1999-2002.  
 Mineral and Rock Physics Committee, American Geophysical Union, 2000-2002.  
 Visiting professor, Ecole Normale Supérieure, Paris, 1998, 2003.  
 Visiting professor, University of Strasbourg, 2003, 2008.  
 Physical Sciences panel, Hong Kong SAR University Grants Committee Research Assessment Exercise, 2006.  
 Panel member, DOE/BES Workshop on Basic Research Needs for Geosciences: Facilitating 21<sup>st</sup> century energy systems, 2007.  
 External review committee, Department of Geological Sciences and Engineering, University of Nevada, Reno, 2008.  
 Advisory board, San Andreas Fault Observatory at Depth (SAFOD), EarthScope, 2004-8.  
 International advisory board, Utrecht University Sustainability Programme, 2015-17.  
 Grants review panel, National Earthquake Hazards Reduction Program, U. S. Geological Survey, 1989-91, 1995-96, 2000-01, 2007, 2010-12, 2017-19.  
 Physical Sciences panel, Hong Kong SAR Research Grants Council, 2013-18.  
 Editorial board, *Earthquake Science*, 2009-2021.  
 Guest associate editor, *Geophysical Prospecting*, 2019-2021.  
 Invited professor, State Key Laboratory of Earthquake Dynamics, Institute of Geology, China Earthquake Administration, 2013- .  
 Vice-President, Rock Physics Committee, Chinese Geophysical Society, 2016- .  
 Joint Research Schemes (Physical Sciences) panel, Hong Kong SAR Research Grants Council, 2020- .  
 Basic Research Award, U.S. National Committee for Rock Mechanics, National Research Council, 1986.  
 Outstanding Volunteer Award, Cornell Cooperative Extension of Suffolk County, NY, 2002.  
 SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities, 2003.  
 Louis Néel Medal of the European Geosciences Union (in recognition of outstanding achievements in rock magnetism, rock physics and geomaterials), 2010.  
 Outstanding Reviewer of the Society of Exploration Geophysicists journal *Geophysics*, 2013.  
 Fellow, American Geophysical Union, 2017.  
 Maurice A. Biot Lecturer, Columbia University/American Society of Civil Engineers, 2017.  
 Editors' Citation for Excellence in Refereeing for *Journal of Geophysical Research Solid Earth*, 2019.  
 Exemplary Teaching Award, CUHK Faculty of Science, 2020.

**Patents**

Smith, C., R. Paulsen, and T.-f. Wong, *Ultrasonic Seepage Meter*,  
U.S. Patents 6,874,371 (4/5/2005); 7,107,859 (9/19/2006)

**Books**

Evans, B., and T.-f. Wong (ed.), "*Fault Mechanics and Transport Properties of Rocks, A Festschrift in Honor of W. F. Brace*", Academic Press, San Diego, 524 pp, 1992.

陈颙、黄庭芳 《岩石物理学》。(Chen, Y., and T.-f. Wong, "*Rock Physics*"), Peking University Press, Beijing, 231 pp, 2001.

Paterson, M.S. and Wong, T.-f., *Experimental Rock Deformation - The Brittle Field*, 2<sup>nd</sup> Edition. Springer-Verlag, New York, 348 pp., 2005.

陈颙、黄庭芳、刘恩儒 《岩石物理学》。合肥：中国科学技术大学出版社，584 页，2009。  
(Chen, Y., T.-f. Wong, and E. Liu, "*Rock Physics*", USTC Press, Hefei, 584 pp, 2009.)

**Papers**

(Google Scholar: Total # of citations 21,769; h-index 73; i10-index 124)

(Web of Science: Total # of articles 120; # of citations 11,366; h-index 57)

Wong, T.-f., and W.F. Brace, Thermal expansion of rocks: Some measurements at high pressure, *Tectonophysics*, **57**, 95-117, 1979.

Wong, T.-f., Shear fracture energy of Westerly granite from post-failure behavior, *J. Geophys. Res.*, **87**, 990-1000, 1982.

Wong, T.-f., Effect of temperature and pressure on failure and post-failure behavior of Westerly granite, *Mechanics of Materials*, **1**, 3-17, 1982.

Wong, T.-f., Micromechanics of faulting in Westerly granite, *Int. J. Rock Mech. Min. Sci.*, **19**, 49-64, 1982.

Walsh, J.B. and T.-f. Wong, Gravity change due to faulting in a viscoelastic half-space, *Acta Seismologica Sinica*, **5**, 169-171, 1983.

Wong, T.-f., Development of stress-induced anisotropy and localized deformation in brittle rock, in *Plastic Behavior of Anisotropic Solids*, ed. J.P. Boehler, 321-337, 1985.

Evans, B., and T.-f. Wong, Shear localization in rocks induced by tectonic deformation, in *Mechanics of Geomaterials: Rocks, Concretes and Soils*, ed. Z.P. Bazant, 189-210, 1985.

Wong, T.-f. and J.B. Walsh, A theoretical analysis of tectonic stress relief during overcoring, *Int. J. Rock Mech. Min. Sci.*, **22**, 163-171, 1985.

Wong, T.-f. and R. Biegel, Effects of pressure on the micromechanics of faulting in San Marcos gabbro, *J. Structural Geol.*, **7**, 737-749, 1985.

Wong, T.-f., Geometric probability approach to the characterization and analysis of microcracking in rocks, *Mechanics of Materials*, **4**, 261-276, 1985.

Fredrich, J. and T.-f. Wong, Micromechanics of thermally induced cracking in three crustal rocks, *J. Geophys. Res.*, **91**, 12743-12764, 1986.

Wong, T.-f., On the normal stress dependence of the shear fracture energy, in *Earthquake Source Mechanics*, A.G.U. Geophysical Monograph **37** (Maurice Ewing volume 6), 1-11, 1986.

Wang, Y. and T.-f. Wong, Finite element analysis of two overcoring techniques for *in situ* stress measurements, *Int. J. Rock Mech. Min. Sci.*, **24**, 41-52, 1987.

Zhang, J. and T.-f. Wong, Lithospheric flexure and deformation-induced gravity changes: Effect of elastic compressibility and gravitation on a multilayered, thick plate model, *Geophys. Jour.*, **92**, 73-88, 1988.

Fredrich, J., B. Evans and T.-f. Wong, Micromechanics of the brittle to plastic transition in Carrara marble, *J. Geophys. Res.*, **94**, 4129-4143, 1989.

Wong, T.-f., J. Fredrich and G. D. Gwanmesia, Crack aperture statistics and pore space fractal geometry of Westerly granite and Rutland quartzite: Implications for an elastic contact model of rock compressibility, *J. Geophys. Res.*, **94**, 10267-10278, 1989.

- Wong, T.-f., Brittle phenomena, in *Encyclopedia of Geophysics*, ed. D. E. James, Van Nostrand Reinhold, NY, 38-48, 1989.
- Wong, T.-f. and Y. Zhao, Effects of load point velocity on frictional instability behavior, *Tectonophysics*, **175**, 177-195, 1990.
- Zhang, J., T.-f. Wong and D. M. Davis, Micromechanics of pressure-induced grain crushing in porous rocks, *J. Geophys. Res.*, **95**, 341-352, 1990.
- Evans, B., J. T. Fredrich and T.-f. Wong, The brittle to ductile transition in rocks: recent experimental and theoretical progress, in *The Brittle-Ductile Transition in Rocks, The Heard Volume*, Geophysical Monograph **56**, Am. Geophys. Union, 1-20, 1990.
- Wong, T.-f., A note on the propagation behavior of a crack nucleated by a dislocation pile-up, *J. Geophys. Res.*, **95**, 8639-8646, 1990.
- Zhang, J., T.-f. Wong, T. Yanagidani and D. M. Davis, Pressure-induced microcracking and grain crushing in Berea and Boise sandstones: acoustic emission and quantitative microscopy measurements, *Mechanics of Materials*, **9**, 1-15, 1990.
- Fredrich, J., B. Evans and T.-f. Wong, Effects of grain size on brittle and semi-brittle strength: implications for micromechanical modeling of failure in compression, *J. Geophys. Res.*, **95**, 10907-10920, 1990.
- Wong, T.-f., Mechanical compaction and the brittle-ductile transition in porous sandstones, in *Deformation Mechanisms, Rheology and Tectonics*, ed. R. J. Knipe and E. H. Rutter, Geological Society Special Publication No. 54, 111-122, 1990.
- Wanamaker, B. J., T.-f. Wong and B. Evans, Decrepitation and crack healing of fluid inclusions in San Carlos olivine, *J. Geophys. Res.*, **95**, 15623-15641, 1990.
- Zhang, J., T.-f. Wong and D. M. Davis, High pressure embrittlement and shear-enhanced compaction in Berea sandstone: acoustic emission measurement and microstructural observation, in *Rock Mechanics Contributions and Challenges, Proc. 31st U. S. Symposium on Rock Mechanics*, ed. W. A. Hustrulid and G. A. Johnson, A. A. Balkema, Rotterdam, 653-660, 1990.
- Wong, T.-f. and J. B. Walsh, Deformation-induced gravity changes in volcanic regions, *Geophys. Jour. Int.*, **106**, 513-520, 1991.
- Gu, Y., and T.-f. Wong, Effects of loading velocity, stiffness, and inertia on the dynamics of a single degree of freedom spring-slider system, *J. Geophys. Res.*, **96**, 21677-21691, 1991.
- Wong, T.-f., News and Views: "Action replay for fracture", *Nature*, **350**, 17-18, 1991.
- Wong, T.-f., Y. Gu, T. Yanagidani and Y. Zhao, Stabilization of faulting by cumulative slip, in *Fault Mechanics and Transport Properties of Rocks*, ed. B. Evans and T.-f. Wong, Academic Press, 119-143, 1992.
- Gu, J. and T.-f. Wong, The transition from stable sliding to cyclic stick-slip: effect of cumulative slip and load point velocity on the nonlinear dynamical behavior in three rock-gouge systems, in *Rock Mechanics Proceedings of the 33rd U. S. Symposium*, ed. J. R. Tillerson and W. R. Wawersik, A. A. Balkema, Rotterdam, 151-158, 1992.
- Wong, T.-f., H. Szeto and J. Zhang, Effect of loading path and porosity on the failure mode of porous rocks, *Applied Mechanics Review*, **45**, 281-293, 1992.
- Zhang, J., D. M. Davis, and T.-f. Wong, Failure modes of tuff samples from Leg 131 in the Nankai accretionary wedge, *Proc. ODP, Init. Reports*, **131**, ed. I. Hill, A. Taira, J. V. Firth et al., 275-281, 1993.
- Zhang, J., D. M. Davis and T.-f. Wong, The brittle-ductile transition in porous sedimentary rocks: geological implications for accretionary wedge aseismicity, *J. Struct. Geol.*, **15**, 819-830, 1993.
- Gu, J. and T.-f. Wong, Nonlinear dynamics of the transition from stable sliding to cyclic stick-slip in rock, in *"Nonlinear Dynamics and Predictability of Critical Geophysical Phenomena"*, ed. W. Newman, A. Gabrielov and D. Turcotte, AGU Geophysical Monograph **83**, IUGG Volume 18, 15-35, 1994.
- Gu, J. and T.-f. Wong, Development of shear localization in simulated quartz gouge: effect of cumulative slip and gouge particle size, *Pure Appl. Geophys.*, **143**, 387-423, 1994.
- David, C., T.-f. Wong, W. Zhu and J. Zhang, Laboratory measurement of compaction-induced permeability change in porous rocks: implications for the generation and maintenance of pore pressure excess in the crust, *Pure Appl. Geophys.*, **143**, 425-456, 1994.

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- Wong, T.-f., C. David, and W. Zhu, The transition from brittle faulting to cataclastic flow in porous sandstones: Mechanical deformation, *J. Geophys. Res.*, **102**, 3009-3025, 1997.
- Zhu, W., and T.-f. Wong, The transition from brittle faulting to cataclastic flow: Permeability evolution, *J. Geophys. Res.*, **102**, 3027-3041, 1997.
- Zhu, W., L. Montesi, and T.-f. Wong, Shear-enhanced compaction and permeability reduction: triaxial extension tests on porous sandstones, *Mech. Mat.*, **25**, 199-214 1997.
- Shah, K. R., and T.-f. Wong, Fracturing at contact surfaces subjected to normal and tangential loads, *Int. J. Rock Mech. Min. Sci.*, **34**, 727-739, 1997.
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- Zhu, W., and T.-f. Wong, Network modeling of the evolution of permeability and dilatancy in compact rock, *J. Geophys. Res.*, **104**, 2963-2971, 1999.
- Wong, T.-f., and W. Zhu, Brittle faulting and permeability evolution: hydromechanical measurement, microstructural observation, and network modeling, in *Faults and Subsurface Fluid Flow in the Shallow Crust*, ed. W.C. Haneberg, P.S. Mozley, J. C. Moore, and L.B. Goodwin, AGU Geophysical Monograph **113**, 83-99, 1999.
- Wong, T.-f., and P. Baud, Mechanical compaction of porous sandstone, *Oil Gas Sci. Tech. – Rev. IFP*, **54**, 715-727, 1999.
- Wu, X. Y., P. Baud, and T.-f. Wong, Micromechanics of compressive failure and spatial evolution of anisotropic damage in Darley Dale sandstone, *Int. J. Rock Mech. Min. Sci.*, **37**, 143-160, 2000.

- Baud, P., W. Zhu, and T.-f. Wong, Failure mode and weakening effect of water on sandstone, *J. Geophys. Res.*, **105**, 16371-16390, 2000.
- Baud, P., A. Schubnel, and T.-f. Wong, Dilatancy, compaction and failure mode in Solnhofen limestone, *J. Geophys. Res.*, **105**, 19289-19303, 2000.
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- Klein, E., P. Baud, T. Reuschle, and T.-f. Wong, Mechanical behaviour and failure mode of Bentheim sandstone under triaxial compression, *Phys. Chem. Earth (A)*, **26**, 21-25, 2001.
- David, C., B. Menéndez, W. Zhu, and T.-f. Wong, Mechanical compaction, microstructures and permeability evolution in sandstones, *Phys. Chem. Earth (A)*, **26**, 45-51, 2001.
- Wong, T.-f., P. Baud, and E. Klein, Localized failure modes in a compactant porous rock, *Geophys. Res. Lett.*, **28**, 2521-2524, 2001.
- Paulsen, R. J., C. F. Smith, D. O'Rourke, and T.-f. Wong, Development and evaluation of an ultrasonic groundwater seepage meter, *Ground Water*, **39**, 904-911, 2001.
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- Rawling, G. C., P. Baud, and T.-f. Wong, Dilatancy, brittle strength and anisotropy of foliated rocks: Experimental deformation and micromechanical modeling, *J. Geophys. Res.*, **107 (B10)**, 2234, doi:10.1029/2001JB000472, 2002.
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- He, C., T.-f. Wong, and N. M. Beeler, Scaling of stress drop with recurrence interval and loading velocity for laboratory-derived fault strength relations, *J. Geophys. Res.*, **108 (B1)**, 2037, doi:10.1029/2002JB001890, 2003.
- Wang, W.-H., and T.-f. Wong, Effects of reaction kinetics and fluid drainage on the development of pore pressure excess in a dehydrating system, *Tectonophysics*, **370**, 227-239, 2003.
- Beeler, N. M., T.-f. Wong, and S. H. Hickman, On the expected relationships between apparent stress, static stress drop, effective shear fracture energy and seismic efficiency, *Bull. Seism. Soc. Am.*, **93**, 1381-1389, 2003.
- Vajdova, V., and T.-f. Wong, Incremental propagation of discrete compaction bands: Acoustic emission and microstructural observations on circumferentially notched samples of Bentheim sandstone, *Geophys. Res. Lett.*, **30** (14), 1775, doi:10.1029/2003GL017750, 2003.
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- Vajdova, V., P. Baud, and T.-f. Wong, Compaction, dilatancy and failure in porous carbonate rocks, *J. Geophys. Res.*, **109**, B05204, doi:10.1029/2003JB002508, 2004.
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- Tembe, S., V. Vajdova, T.-f. Wong, and W. Zhu, Initiation and propagation of strain localization in circumferentially notched samples of two porous sandstones, *J. Geophys. Res.*, **111**, B02409, doi:10.1029/2005JB003611, 2006.
- Wong, T.-f., R.H.C. Wong, K.T. Chau, and C. A. Tang, Microcrack statistics, Weibull distribution and micromechanical modeling of compressive failure in rock, *Mech. Mat.*, **38**, 664-681, 2006.
- Louis, L., T.-f. Wong, P. Baud, and S. Tembe, Imaging strain localization by X-ray computed tomography: discrete compaction bands in Diemelstadt sandstone, *J. Struct. Geol.*, **28**, 762-775, 2006.
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- Tembe, S., V. Vajdova, P. Baud, W. Zhu, and T.-f. Wong, A new methodology to delineate the compactive yield cap of two porous sandstones under undrained condition, *Mech. Mat.*, **39**, 513-523, 2007.
- Louis, L., T.-f. Wong, and P. Baud, Imaging strain localization by X-ray radiography and digital image correlation: deformation bands in Rothbach sandstone, *J. Struct. Geol.*, **29**, 129-140, 2007.
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