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Research interest 研究領域 : Mineral Physics 礦物物理

[Education 學歷]

- 2014, Ph.D. Earth and Planetary Sciences, Northwestern University, IL, USA
美國西北大學地球與行星科學博士
- 2008, M.S. Material Sciences and Engineering, Stanford University, CA, USA
美國史丹佛大學材料工程碩士
- 2004, M.S. Aeronautic and Astronautic Engineering, National Cheng Kung University, Taiwan
國立成功大學航空太空工程碩士
- 2002, B.S. Aeronautic and Astronautic Engineering, National Cheng Kung University, Taiwan
國立成功大學航空太空工程學士

[Employment 經歷]

- 2018 / 08 / 03 – present : Assistant Research Fellow, Academia Sinica 中央研究院助研究員
- 2014 / 12 – 2017 / 08 / 02 : Postdoctoral Fellow, Institute of Earth Sciences, Academia Sinica
中央研究院博士後研究

[Award 榮譽]

- 2018/04 : 2018 Postdoctoral Research Paper Award from the Ministry of Science and Technology, R.O.C. 106 年度科技部博士後研究人員學術著作獎

[Publication 著作]

1. Zhai, S. M., Yin, Y., Shieh, S. R., **Chang, Y. Y.**, Xie, T. Q., & Xue, W. H. (2017). Raman spectroscopic study of MnAl₂O₄ galaxite at various pressures and temperatures. *Physics and Chemistry of Minerals*, 44(3), 163-170. doi:10.1007/s00269-016-0845-2
2. Liu, Xiaobing*, **Chang, Yun-Yuan**, Tkachev, Sergey N., Bina, Craig R., Jacobsen, Steven D., (2017), [Elastic and mechanical softening in boron-doped diamond](#), *Scientific Reports*, 7(1), DOI: 10.1038/srep42921
3. **Yun-Yuan Chang**, Wen-Pin Hsieh*, Eh Tan, and Jihua Chen (2017) [Hydration-reduced lattice thermal conductivity of olivine in Earth's upper mantle](#). *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*, 114(16), 4078-4081. DOI: 10.1073/pnas.1616216114
4. **Yun-Yuan Chang**, Steven D. Jacobsen, Craig R. Bina, Sylvia-Monique Thomas, Joseph R. Smyth, Daniel J. Frost, Tiziana Boffa Ballaran, Catherine A. McCammon, Erik H. Hauri, Toru Inoue,

- Hisayoshi Yurimoto, Yue Meng, Przemyslaw Dera (2015) [Comparative compressibility of hydrous wadsleyite and ringwoodite: Effect of H₂O and implications for detecting water in the transition zone](#), *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*, 120(12), 8259-8280. DOI: 10.1002/2015JB012123
5. **Chang, Y.Y.**, S.D. Jacobsen, M. Kimura, T. Irifune, and I. Ohno (2014) [Elastic properties of transparent nano-polycrystalline diamond measured by GHz-ultrasonic interferometry and resonant sphere methods](#). *Physics of the Earth and Planetary Interiors*, 28, 47-55.
 6. **Chang, Y.Y.**, S.D. Jacobsen, J.F. Lin, C.R. Bina, S.M. Thomas, J. Wu, G. Shen, Y. Xiao, P. Chow, D.J. Frost, C.A. McCammon, and P. Dera (2013) [Spin transition of Fe³⁺ in Al-bearing phase D: an alternative explanation for small-scale seismic scatterers in the mid-lower mantle](#). *Earth and Planetary Science Letters*, 382,1-9.
 7. Townsend, J.P., **Y.Y. Chang**, X. Lou, M. Merino, S.J. Kirklin, J.W. Doak, A. Issa, C. Wolverton, S.N. Tkachev, P. Dera, and S.D. Jacobsen (2013) [Stability and equation of state of post-aragonite BaCO₃](#). *Physics and Chemistry of Minerals* 40, doi:10.1007/s00269013-0582.8.
 8. Ye, Y., J.R. Smyth, S.D. Jacobsen, W.R. Panero, D.A. Brown, T. Katsura, **Y.Y. Chang**, J.P. Townsend, P. Dera, S. Tkachev, C. Unterborn, Z. Liu, and C. Goujon (2013) [Crystal structure, Raman and FTIR spectroscopy, and equations of state of OH-bearing MgSiO₃ akimotoite](#). *Contributions to Mineralogy and Petrology*, 14.
 9. Ye, Y., D.A. Brown, J.R. Smyth, W.R. Panero, S.D. Jacobsen, **Y.Y. Chang**, J.P. Townsend, S.M. Thomas, E.H. Hauri, P. Dera, and D.J. Frost (2012) [Compressibility and thermal expansion of hydrous ringwoodite with 2.5\(3\) wt% H₂O](#). *American Mineralogist*, 97, 573-582.
 10. Mao, Z., J.F. Lin, S.D. Jacobsen, T.S. Duffy, **Y.Y. Chang**, J.R. Smyth, D.J. Frost, E.H. Hauri, and V.B. Prakapenka (2012) [Sound velocities of hydrous ringwoodite to 16 GPa and 673K](#). *Earth and Planetary Science Letters*, 331-332, 112-119.
 11. Zhang, J.S., J.D. Bass, T. Taniguchi, A.F. Goncharov, **Y.Y. Chang**, and S.D. Jacobsen (2011) [Elasticity of cubic boron nitride under ambient conditions](#). *Journal of Applied Physics*, 109, 063521.
 12. Lin, J.F., H.P. Scott, R.A. Fischer, **Y.Y. Chang**, I. Kantor, V.B. Prakapenka (2009) [Phase relations of Fe-Si alloy in Earth's core](#). *Geophysical Research Letters*, 36, L06306.
 13. Yang, S.M., **Y.Y. Chang**, Y.C. Hsieh, and Y.J. Lee (2008) [Electromagnetic Shielding Effectiveness of Multilayer Metallic Thin Film on Plastic Substrates](#). *Journal of Applied Polymer Science*, 110, 1403-1410.
 14. Yang, S.M., C.J. Chen, **Y.Y. Chang**, and Y.Z. Tung (2007) [Development of a Self-Organized Neuro-Fuzzy Model for System Identification](#). *ASME Transactions Journal of Vibration and Acoustics*, 129, 507-513.

[Conference Abstract 會議摘要]

1. **Chang, Y.Y.**, X. Liu, J.P. Townsend, H. Ma, X. Jia, S.D. Jacobsen (2014) Hardness and elastic properties of boron-doped diamond, 2014 Stewardship Science Academic Alliances (SSAA) Symposium of the National Nuclear Security Administration, Washington D.C., February 19-20, 2014.
2. **Chang, Y.Y.**, S.D. Jacobsen, M. Kimura, T. Irifune, and I. Ohno (2013) Elastic properties of transparent nano-polycrystalline diamond measured by GHz-ultrasonic interferometry and resonant sphere methods, COMPRES Annual Meeting, Lake Geneva, WI, June 17-20, 2013.
3. Irifune, T., M. Kumura, I. Ohno, **Y.Y. Chang**, and S.D. Jacobsen (2013) Elastic properties of nano-polycrystalline diamond by sphere resonance and GHz-ultrasonic interferometry. AOGS 2013.
4. **Chang, Y.Y.**, S.D. Jacobsen, J.F. Lin, J. Wu, D.J. Frost, S.M. Thomas, P. Dera, Y. Xiao, G. Shen (2012) Electronic Spin Transition of Iron in Dense Hydrous Magnesium Silicate Phase D at High Pressure, COMPRES Annual Meeting and High-Pressure Mineral Physics Seminar-8, Lake Tahoe, CA, 9-13 July, 2012.
5. Lin, J.F., Z. Mao, C. Lu, S.D. Jacobsen, T.S. Duffy, **Y.Y. Chang**, D.J. Frost, E.H. Hauri, K.K. Zhuravlev, S.N. Tkachev, and V. Prakapenka (2012) Sound velocities of the transition zone minerals (INVITED). 2012 Fall Meeting, American Geophysical Union, San Francisco, CA, 3-7 Dec, Abstract D121C-01.
6. **Chang, Y.Y.**, S.D. Jacobsen, J.F. Lin, J. Wu, D.J. Frost, S.M. Thomas, P.K. Dera, Y. Xiao, P. Chow, G. Shen (2011) Electronic Spin Transition of Iron in Dense Hydrous Magnesium Silicate Phase D at

High

Pressure, 2011 Fall Meeting, American Geophysical Union, San Francisco, CA, 5-9 Dec, Abstract MR34A-05.

7. **Chang, Y.Y.**, S.D. Jacobsen, J.F. Lin, J. Wu, Y. Xiao, and D.J. Frost (2011) Electronic spin transition of iron in dense hydrous magnesium silicate at high pressure. 2011 Stewardship Science Academic Alliances (SSAA) Symposium of the National Nuclear Security Administration, Washington D.C., February 15-17, 2011.
8. Mao, Z., J.F. Lin, S.D. Jacobsen, T.S. Duffy, **Y.Y. Chang**, D.J. Frost, E.H. Hauri, and V. Prakapenka (2011) Elasticity of Hydrous Ringwoodite in Earth's Transition Zone, 2011 Fall Meeting, American Geophysical Union, San Francisco, CA, 5-9 Dec, Abstract DI13B-08.
9. Townsend, J., **Y.Y. Chang**, X. Lou, S. Kirklin, J. Doak, A. Issa, S. Tkachev, P.K. Dera, and S.D. Jacobsen (2011) Stability of post-aragonite BaCO₃ to 130 GPa and 2000 K. 2011 Fall Meeting, American Geophysical Union, San Francisco, CA, 5-9 Dec, Abstract MR51A-2154.
10. **Chang, Y.Y.**, S.D. Jacobsen, C. Yan, J. Lai, and R.J. Hemley (2010) Elastic properties of superhard materials using GHz-ultrasonic interferometry: application to diamond. 2010 Stewardship Science Academic Alliances (SSAA) Symposium of the National Nuclear Security Administration, Washington D.C., January 2010.
11. **Chang, Y.Y.**, S.D. Jacobsen, C. Yan, J. Lai, R.J. Hemley, and C.R. Bina (2010) Developments in GHz- ultrasonics for elasticity studies of geophysical and applied materials: application to diamond. Consortium for Materials Properties Research in Earth Sciences (COMPRES) 2010 Annual Meeting. Skamania Lodge, Stevenson, WA, 22-25 June 2010.
12. **Chang, Y.Y.**, S.D. Jacobsen, S.M. Thomas, C.R. Bina, J.R. Smyth, D.J. Frost, E.H. Hauri, Y. Meng, and P.K. Dera (2010) Comparative compressibility of hydrous wadsleyite. *Eos Trans. AGU*, 91(52), Fall Meet. Suppl., MR22A-06.
13. Lou, X., S.D. Jacobsen, S. van der Lee, C.R. Bina, and **Y.Y. Chang** (2010) Modeling Effects of Hydration on Mantle Elasticity: A Comparison with Seismology. Consortium for Materials Properties Research in Earth Sciences (COMPRES) 2010 Annual Meeting. Skamania Lodge, Stevenson, WA, 22-25 June 2010.
14. Van der Lee, S., S.D. Jacobsen, X. Lou, **Y.Y. Chang**, K. Regenauer-Lieb, and D.A. Yuen (2010) Earth's deep water cycle as a possible explanation of the Wilson Cycle. *Eos Trans. AGU*, 91(52), Fall Meet. Suppl., T11G-06.
15. **Chang, Y.Y.**, S.D. Jacobsen, C.M. Holl, and C.R. Bina (2009) Developments in GHz-ultrasonic interferometry for elasticity studies in geophysics and materials science: application to diamond. *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., MR13A-1661.

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