



Kwan-Nang Pang Associate Research Fellow

彭君能 副研究員

Institute of Earth Sciences, Academia Sinica, Nangang, Taipei, Taiwan
中央研究院地球科學研究所

Research interest: igneous petrology, geochemistry, magmatic ore deposits

研究領域: 火成岩岩石學 · 地球化學 · 岩漿型礦床

Email: knpang_at_earth.sinica.edu.tw

Phone: (886)-2-27839910 (ext. 614)

EDUCATION

- 2007 Ph.D. in Igneous Petrology and Geochemistry, The University of Hong Kong, Hong Kong
Dissertation: Origin of the Permian Panzhihua Layered Gabbroic Intrusion and the hosted Fe-Ti-V Oxide Deposit, Sichuan Province, SW China
Advisors: Drs. Mei-Fu Zhou and John G. Malpas
- 2003 B.Sc. in Earth Sciences, The University of Hong Kong, Hong Kong
-

RESEARCH

I use geochronology, elemental and isotopic geochemistry, petrology and petrologic modeling to investigate geologic problems. My main research interests include how are magmatic and tectonic processes related in orogenic belts, mechanisms driving intraplate magmatism, petrogenetic processes responsible for the compositional diversity of magmas, and magma chamber processes responsible for magma differentiation. I am particularly interested in how do compositions of continental crust and mantle evolve in space and time, how did the continental crust grow to its present size, and how does the Earth behave as a unique "Earth system". Specific topics are as follows:

- Magmatic orogens and continent formation
 - Continental intraplate magmatism
 - Layered intrusions and magmatic ore deposits
 - Petrogenesis of Fe-Ti-P-rich rocks
 - Magma-wallrock interaction and potential environmental impact
-

EMPLOYMENT

- 3/2021 to present Associate Research Fellow, Institute of Earth Sciences, Academia Sinica, Nangang, Taipei, Taiwan
- 10/2014–3/2021 Assistant Research Fellow, Institute of Earth Sciences, Academia Sinica, Nangang, Taipei, Taiwan
- 4/2009–9/2014 Post-doctoral fellow, Department of Geosciences, National Taiwan University, Taipei, Taiwan
- 6/2008–2/2009 Post-doctoral fellow, Laboratoire de Géodynamique des Chaînes Alpines (LGCA), Maison des géosciences, Université Joseph Fourier, Grenoble, France

9/2007–2/2008	Research assistant, Department of Earth Sciences, The University of Hong Kong
9/2003–8/2007	Teaching assistant, Department of Earth Sciences, The University of Hong Kong

AWARDS

2020	Career Development Award, Academia Sinica
2018	17th Defeng Hou Mineralogy, Petrology and Geochemistry Young Scientist Award
2018	Ting-Ying Ma Young Scientist's Paper Award
2013	Post-doctoral Fellow Academic Publication Prize, National Science Council, Taiwan
2005	Best student oral presentation award, The Eighth Biennial SGA Meeting, Beijing, China
2003	Hong Kong Institute of Quarrying Thesis Prize, Institute of Quarrying, Hong Kong Branch
2002	Hui Yin Hing Scholarship, Faculty of Science, The University of Hong Kong, Hong Kong
2002	Awardee of attendance for the London International Youth Science Forum (LIYSF), Faculty of Science, The University of Hong Kong
2001, 2003	Yung Foundation Prizes in Earth Sciences, Faculty of Science, The University of Hong Kong, Hong Kong
2001–2003	Dean's Honour List, Faculty of Science, The University of Hong Kong

PROFESSIONAL ACTIVITIES

Solicited journal reviews: *Journal of Petrology*, *Contributions to Mineralogy and Petrology*, *Chemical Geology*, *Geochimica et Cosmochimica Acta*, *Lithos*, *Economic Geology*, *Journal of Asian Earth Sciences*, *Tectonophysics*, *Geology*, *Journal of Geophysical Research–Solid Earth*, *Scientific Reports*, *Nature Geoscience*, *G-cubed*

4/2020	Editorial Board, <i>Journal of Asian Earth Sciences</i>
3/2020	Topic editor (with Drs. J. Gregory Shellnutt and Steven W. Denyszyn) – Granite petrogenesis and geodynamics, <i>Frontiers in Earth Science</i>
8/2019	Convenor (with Drs. Ming Tang and Scott A. Whattam) – Session 03I: Magmas from nascent to mature subduction zones and collisional environments. Goldschmidt 2019, Barcelona, Spain
6/2016	Convenor (with Drs. Xian-Hua Li and Sun-Lin Chung) – Session 05c: Crust-Mantle Interaction and Magma Genesis in Asian Orogeny. Goldschmidt 2016, Yokohama, Japan
3-5/2015	Visiting Research Scholar, Department of Earth and Space Science, University of Washington, USA
5/2011	Convenor (with Dr. Te-Hsien Lin) – Session V3: General Geochemistry. 2011 Geological Annual Congress, Chinese Taipei Geophysical Society & Geological Society of Taiwan, Taipei
6/2010	Convenor (with Dr. J. Gregory Shellnutt) – Session V22A: Large Igneous Provinces: Recent Developments and Ways Forward. Western Pacific Geophysics Meeting, Taipei
12/2004	Editor (with Drs. J. Gregory Shellnutt and Mei-Fu Zhou) – Proceedings of the IGCP479 Hong Kong Workshop – Recent Advances in Magmatic Ore Systems in Mafic-ultramafic Rocks

STUDENTS, POST-DOCTORAL FELLOWS AND VISITORS

11/2019	Ms. Nadezhda Kanygina (Geological Institute, Russian Academy of Science)
---------	--

9/2019 onwards	Ms. Ya-Rong Hsu (MSc student, National Taiwan University)
10-11/2018	Dr. Masatoshi Sone (University of Malaya)
5-7/2018	Ms. Phattharawadee Wacharapornpinthu (Chiang Mai University)
12/2017-2/2018	Mr. Marutphong Srichan (Chiang Mai University)
7-8/2017	Ms. Ya-Rong Hsu (University of Taipei)
7/2017-12/2020	Dr. Yang Sun (post-doctoral fellow)
3/2017	Dr. Chusi Li (Indiana University, Bloomington, U.S.A.)
6-8/2016	Ms. Chen Chen (Institute of Geology and Geophysics, Chinese Academy of Sciences)
6/2016	Dr. Fang-Zhen Teng (University of Washington, U.S.A.)
6/2016	Dr. Ben-Xun Su (Institute of Geology and Geophysics, Chinese Academy of Sciences)
6-12/2016	Mr. Mojtaba Rostamihossouri (Shahrood University, Iran)
3/2016	Dr. Aliakbar Baharifar (Payame Noor University, Iran)
7-8/2015	Ms. Yu-Chi Hong and Mr. Shao-Chen Hsu (National Taiwan University)

PUBLICATIONS

[40]	Sun, Y., Teng, F.-Z., Pang, K.-N. , Ying, J.-F., Kuehner, S., 2021. Multiple-stage mantle metasomatism deciphered by Mg-Sr-Nd-Pb isotopes in the Leucite Hills lamproites. <i>Contributions to Mineralogy and Petrology</i> 176, 45.
[39]	Maghdour-Mashhour, R., Hayes, B., Pang, K.-N. , Bolhar, R., Shabani, A.A.T., Elahi-Janatmakan, F., 2021. Episodic subduction initiation triggered Jurassic magmatism in the Sanandaj–Sirjan zone, Iran. <i>Lithos</i> 396-397, 106189.
[38]	Sun, Y., Teng, F.-Z., Pang, K.-N. , 2021. The presence of paleo-Pacific slab beneath northwest North China Craton hinted by low- $\delta^{26}\text{Mg}$ basalts at Wulanhada. <i>Lithos</i> 386-387, 106009.
[37]	Shellnutt, J.G., Denyszyn, S.W., Pang, K.-N. , 2021. Editorial: Granite petrogenesis and geodynamics. <i>Frontiers in Earth Science</i> 8, 637729.
[36]	Kanygina, N.A., Tretyakov, A.A., Degtyarev, K.E., Kovach, V.P., Skuzovatov, S.Y., Pang, K.-N. , Wang, K.-L., Lee, H.-Y., 2021. Late Mesoproterozoic–early Neoproterozoic quartzite–schist sequences of the Aktau–Mointy terrane (Central Kazakhstan): Provenance, crustal evolution, and implications for paleotectonic reconstruction. <i>Precambrian Research</i> 354, 106040.
[35]	Pang, K.-N. , Fazlnia, A., W.-Q., Ji, Jamei, S., Jafari, A., 2020. Petrogenesis of the Late Oligocene Takht batholith, southeastern Iran: Implications for the diachronous nature of the Arabia-Eurasia collision. <i>Frontiers in Earth Science</i> 8, 354.
[34]	Pang, K.-N. , Teng, F.-Z., Sun, Y., Chung, S.-L., Zarrinkoub, M.H., 2020. Magnesium isotopic systematics of the Makran arc magmas, Iran: Implications for crust-mantle Mg isotopic balance. <i>Geochimica et Cosmochimica Acta</i> , 278, 110-121.
[33]	Sun, Y., Teng, F.-Z., Hu, Y., Chen, X.-Y., Pang, K.-N. , 2020. Tracing subducted oceanic crust in the mantle by using potassium isotopes. <i>Geochimica et Cosmochimica Acta</i> , 278, 353-360.
[32]	Rostami-Hossouri, M., Ghasemi, H., Pang, K.-N. , Shellnutt, J.G., Rezaei-Kahkhaei, M., Miao, L., Mobasher, M., Iizuka, Y., Lee, H.-Y., Lin, T.-H., 2019. Generation of continental alkali basalts by garnet pyroxenite melting: a case study from Sabzevar, northern Iran. <i>Contributions to Mineralogy and Petrology</i> , 175, 50.
[31]	Lin, Y.-C., Chung, S.-L., Bingöl, F., Yang, L., Okrostsvardize, A., Pang, K.-N. , Lee, H.-Y., Lin, T.-H., 2020. Diachronous initiation of post-collisional magmatism in the Arabia-Eurasia collision zone. <i>Lithos</i> , 356-357, 105394.
[30]	Liang, Y.-H., Huang, K.-Y., Lee, D.-C., Pang, K.-N. , Chen, S.-H., 2019. High-precision iron isotope analysis of whole blood, erythrocytes, and serum in adults. <i>Journal of Trace Elements in Medicine and Biology</i> , 58, 126421.

[29]	Kanygina, N.A., Tretyakov, A.A., Degtyarev, K.E., Pang, K.-N. , Wang, K.-L., Lee, H.-Y., Plotkina, J.V., 2019. First results of dating detrital zircons from the Late Precambrian quartzite-schist sequences of the Chu Block (Southern Kazakhstan). <i>Doklady Earth Sciences</i> , 489, 1273-1276.
[28]	Stern, C.R., Pang, K.-N. , Lee, H.-Y., Skewes, M.A., Arévalo, A., 2019. Implications of Hf isotopes for the evolution of the mantle source of magmas associated with the Giant El Teniente Cu-Mo megabreccia deposit, central Chile. <i>Minerals</i> , 9, 550.
[27]	Chen, C., Su, B.-X., Xiao, Y., Sakyi, P.A., He, X.-Q., Pang, K.-N. , Uysal, I., Avci, E., Qin, L.-P., 2019. High-temperature chromium isotope fractionation and its implications: Constraints from Kızıldağ ophiolite, SE Turkey. <i>Lithos</i> , 342-343, 361-369.
[26]	Baharifar, A., Whitney, D.L., Pang, K.-N. , Chung, S.-L., Iizuka, Y., 2019. Petrology, geothermobarometry, and P-T path of spinel-bearing symplectite migmatites from the Simin area, Hamedan, Sanandaj-Sirjan Zone, Iran. <i>Turkish Journal of Earth Sciences</i> , 28, 275-298.
[25]	Chen, C., Su, B.-X., Xiao, Y., Pang, K.-N. , Robinson, P.T., Uysal, I., Lin, W., Qin, K.-Z., Avci, E., Kapsiotis, A., 2019. Intermediate chromitite in Kızıldağ ophiolite (SE Turkey) formed during subduction initiation in Neo-Tethys. <i>Ore Geology Reviews</i> , 104, 88-100.
[24]	Su, B.-X., Chen, C., Pang, K.-N. , Sakyi, P.A., Uysal, I., Avci, E., Liu, X., Zhang, P.-F., 2018. Melt penetration in oceanic lithosphere: Li isotope records from the Pozanti-Karsanti ophiolite in southern Turkey. <i>Journal of Petrology</i> , 59, 191-205.
[23]	Pang, K.-N. , Shellnutt, J.G., 2018. Magmatic sulfide and Fe-Ti oxide deposits associated with mafic-ultramafic intrusions in China. In: Mondal, S.K., Griffin, W.L. (eds.). <i>Processes and Ore Deposits of Ultramafic-Mafic Magmas through Space and Time</i> . Elsevier, p. 239-266.
[22]	Chiu, H.-Y., Chung, S.-L., Zarrinkoub, M.H., Melkonyan, R., Pang, K.-N. , Lee, H.-Y., Wang, K.-L., Mohammadi, S.S., Khatib, M.M., 2017. Zircon Hf isotopic constraints on magmatic and tectonic evolution in Iran: Implications for crustal growth in the Tethyan orogenic belt. <i>Journal of Asian Earth Sciences</i> , 145, 652-669.
[21]	Su, B., Chen, C., Bai, Y., Pang, K.-N. , Qin, K.-Z., Asamoah Sakyi, P., 2017. Lithium isotopic composition of Alaskan-type intrusion and its implication. <i>Lithos</i> , 286-287, 363-368.
[20]	Pang, K.-N. , Chung, S.-L., Zarrinkoub, M.H., Li, X.-H., Lee, H.-Y., Lin, T.-H., Chiu, H.-Y., 2016. New age and geochemical constraints on the origin of Quaternary adakite-like lavas in the Arabia-Eurasia collision zone. <i>Lithos</i> , 264, 348-359.
[19]	Pang, K.-N. , Chung, S.-L., Zarrinkoub, M.H., Wang, F., Kamenetsky, V.S., Lee, H.-Y., 2015. Quaternary high-Mg ultrapotassic rocks from the Qal'eh Hasan Ali maars, southeastern Iran: petrogenesis and geodynamic implications. <i>Contributions to Mineralogy and Petrology</i> , 170, 27.
[18]	Pang, K.-N. , Shellnutt, J.G., Zhou, M.-F., 2015. The Panzhihua intrusion, SW China. In: Charlier, B., Namur, O., Tegner, C., Latypov, R. (eds.). <i>Layered Intrusions</i> , Springer, pp. 435-464.
[17]	Namur, O., Abily, B., Boudreau, A., Blanchette, F., Bush, J.W.M., Ceuleneer, G., Charlier, B., Donaldson, C.H., Duchesne, J.C., Higgins, M.D., Morata, D., Nielsen, T.F.D., O'Driscoll, B., Pang, K.-N. , Peacock, T., Spandler, C., Toramaru, A., Veksler, I.V., 2015. Igneous layering in basaltic magma chambers. In: Charlier, B., Namur, O., Tegner, C., Latypov, R. (eds.). <i>Layered Intrusions</i> , Springer, pp. 75-152.
[16]	Su, B.-X., Gu, X.-Y., Deloule, E., Zhang, H.-F., Li, Q.-L., Li, X.-H., Vigier, N., Tang, Y.-J., Tang, G.-Q., Liu, Y., Brewer, A., Pang, K.-N. , Mao, Q., Ma, Y.-G., 2015. Potential orthopyroxene, clinopyroxene and olivine reference materials for in situ lithium isotope determination. <i>Geostandards and Geoanalytical Research</i> , 39, 357-369.
[15]	Su, B.-X., Chung, S.-L., Zarrinkoub, M.H., Pang, K.-N. , Chen, L., Ji, W.-Q., Brewer, A., Ying, J.-F., Khatib, M.M., 2014. Composition and structure of the lithospheric mantle beneath NE Iran: Constraints from mantle xenoliths. <i>Lithos</i> , 202-203, 267-282.
[14]	Pang, K.-N. , Chung, S.-L., Zarrinkoub, M.H., Chiu, H.-Y., Li, X.-H., 2014. On the magmatic record of the Makran arc, southeastern Iran: Insights from zircon U-Pb geochronology and bulk-rock geochemistry. <i>Geochemistry, Geophysics, Geosystems</i> , 15, 2151-2169.

[13]	Pang, K.-N. , Chung, S.-L., Zarrinkoub, M.H., Khatib, M.M., Mohammadi, S.S., Chiu, H.-Y., Chu, C.-H., Lee, H.-Y., Lo, C.-H., 2013. Eocene-Oligocene post-collisional magmatism in the Lut-Sistan region, eastern Iran: Magma genesis and tectonic implications. <i>Lithos</i> , 180-181, 234-251.
[12]	Pang, K.-N. , Chung, S.-L., Zarrinkoub, M.H., Lin, Y.-C., Lee, H.-Y., Lo, C.-H., Khatib, M.M., 2013. Iranian ultrapotassic volcanism at ~11 Ma signifies the initiation of post-collisional magmatism in the Arabia-Eurasia collision zone. <i>Terra Nova</i> , 25, 405-413.
[11]	Pang, K.-N. , Zhou, M.-F., Chung, S.-L., Qi, L., Chu, C.-H., Lee, H.-Y., 2013. Petrology and geochemistry at the Lower zone-Middle zone transition of the Panzhihua intrusion, SW China: implications for differentiation and oxide ore genesis. <i>Geoscience Frontiers</i> , 4, 517-533.
[10]	Pang, K.-N. , Arndt, N.T., Svensen, H., Planke, S., Polozov, A., Polteau, S., Iizuka, Y., Chung, S.-L., 2013. A petrologic, geochemical and Sr-Nd isotopic study on contact metamorphism and degassing of Devonian evaporites in the Norilsk aureoles, Siberia. <i>Contributions to Mineralogy and Petrology</i> , 165, 683-704.
[9]	Zarrinkoub, M.H., Pang, K.-N. , Chung, S.-L., Khatib, M., Mohammadi, S., Chiu, H.-Y., Lee, H.-Y., 2012. Zircon U-Pb ages and geochemical constraints on the origin of the Birjand ophiolite, eastern Iran. <i>Lithos</i> , 154, 392-405.
[8]	Shellnutt, J.G., Pang, K.-N. , 2012. Petrogenetic implications of mineral chemical data for the Permian Baima igneous complex, SW China. <i>Mineralogy and Petrology</i> , 106, 75-88.
[7]	Pang, K.-N. , Chung, S.-L., Zarrinkoub, M.H., Mohammadi, S.S., Yang, H.-M., Chu, C.-H., Lee, H.-Y., Lo, C.-H., 2012. Age, geochemical characteristics and petrogenesis of Late Cenozoic intraplate alkali basalts in the Lut-Sistan region, eastern Iran. <i>Chemical Geology</i> , 306-307, 40-53.
[6]	Shellnutt, J.G., Wang, K.-L., Zellmer, G.F., Iizuka, Y., Jahn, B.-M., Pang, K.-N. , Qi, L., Zhou, M.-F., 2011. Three Fe-Ti oxide ore-bearing gabbro-granitoid complexes in the Panxi Region of the Permian Emeishan Large Igneous Province, SW China. <i>American Journal of Science</i> , 311, 773-812.
[5]	Anh, T.V., Pang, K.-N. , Chung, S.-L., Lin, H.-M., Tran, T.H., Tran, T.A., Yang, H.-J., 2011. The Song Da magmatic suite revisited: A petrologic, geochemical and Sr-Nd isotopic study on picrites, flood basalts and silicic volcanic rocks. <i>Journal of Asian Earth Sciences</i> , 42, 1341-1355.
[4]	Pang, K.-N. , Zhou, M.-F., Qi, L., Shellnutt, J.G., Wang, C.Y., Zhao, D., 2010. Flood basalt-related Fe-Ti oxide deposits in the Emeishan large igneous province, SW China. <i>Lithos</i> , 119, 123-136.
[3]	Pang, K.-N. , Li, C., Zhou, M.-F., Ripley, E.M., 2009. Mineral compositional constraints on petrogenesis and oxide ore genesis of the Panzhihua layered gabbroic intrusion, SW China. <i>Lithos</i> , 110, 199-214.
[2]	Pang, K.-N. , Li, C., Zhou, M.-F., Ripley, E.M., 2008. Abundant Fe-Ti oxide inclusions in olivine from the Panzhihua and Hongge layered intrusions, SW China: evidence for early saturation of Fe-Ti oxides in ferrobasaltic magma. <i>Contributions to Mineralogy and Petrology</i> , 156, 307-321.
[1]	Pang, K.-N. , Zhou, M.-F., Lindsley, D.H., Zhao, D., Malpas, J., 2008. Origin of Fe-Ti oxide ores in mafic intrusions: Evidence from the Panzhihua intrusion. <i>Journal of Petrology</i> , 49, 295-313.