UNIVERSITÀ DEGLI STUDI DI MILANO

TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO **ID CODE 6176**

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Scienze della Terra**

Scientist- in – charge: **Tiepolo Massimo**

[Wei Chen]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Chen
Name	Wei

PRESENT OCCUPATION

Appointment	Structure
Assistant research fellow	Institute of Oceanology, Chinese Academy of Sciences

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
BSc Degree	College English College Chinese College Physics Advanced mathematics General Geology General Chemistry Introduction of Computer Technology Modern Measurement Technology Crystallography and Mineralogy Physical Experiment Geological Sketch Basketball General Geology Teaching Practice Petrology Geographic Information System Probability and Mathematical Statistics Historical Paleontology Geology Organic Chemistry Advanced English Listening &Speaking Integrated Advanced English Measurement Teaching Practice Stratigraphy Teaching Practice Geochemistry Engineering Mechanics Tectonics Coal Geology Hydrogeology Petroleum Geology Introduction to Majors Professional English Geological Mapping Tectonics Pracice Mapping by Computer Study of Ore Deposit Dynamics of Groundwater Geophysical Exploration Method of Exploration Regional Geology	Shandong university of Science and Technology	30 June 2014
Specialization			

PhD	Research in the Theory and Practice of Socialism with Chinese Characteristics Igneous petrology Metamoriphric petrology Introduction to geodynamics International Security and new Revolution in Military Affairs Chinese Marxism and the contemporary Earth Science data Management Experimental petrology Element geochemistry Isotope geochemistry Trace element geochemistry English B Discussion on some macroeconomic issues Analytical geochemistry Petrogeochemistry Dialectics of nature and theory of science and technology Applications of computer to geoscience and environment Progress in petrology Trace element geochemistry Modern instrumental analysis Magmatic process and mineralization Master degree english (Exemption) Science advance (1) Thermaldynamic petrology Series of leatures in humanities	University of Chinese Academy of Sciences; GuangZhou Institute of Geochemistry, Chinese Academy of Sciences	30 June 2019
Master	In China, like in the USA, master level courses are part of obtaining a PhD degree: in the first 2 years we follow a number of MSc level courses and then we continue with our research for 3 years. Hence, MSc degrees are not given as separate degrees, and finally, we only receive a PhD degree. The Master level courses I took during my PhD are therefore included under "PhD degree".	University of Chinese Academy of Sciences; GuangZhou Institute of Geochemistry, Chinese Academy of Sciences	Master experience: September 2014-September 2016. Please see details in "Master experience certificate"
Degree of medical specialization			
Degree of European specialization			
Other			

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City
April 2019	European Association of Geochemistry	Vienna

FOREIGN LANGUAGES

Languages	level of knowledge
English	Advanced level in writing and reading, intermediate level in listening and oral production

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2019	National Scholarship for Doctoral Students

2019	Outstanding Student of University of Chinese Academy of Sciences
2019	The second prize of Outstanding scientific research award for graduate student in Guangzhou Institute of Geochemistry, Chinese Academy of Science
2018	The third prize of outstanding report of 6th graduate academic conference in State Key Laboratory of Isotope Geochemistry, Chinese Academy of Sciences

TRAINING OR RESEARCH ACTIVITY

description of activity

I major in experimental geochemistry and petrology using piston cylinder and multi anvil. My past research investigated petrologic and geochemical processes associated with subduction, which can be divided into 3 parts.

The first part is about high field strength element mobilization and fractionation promoted by supercritical fluid at subduction zones. High field strength elements (HFSE) were considered as fluid-immobile elements, however, our results show the solubilities of rutile and zircon in supercritical are 3 orders of magnitude higher than those in aqueous fluids. Supercritical fluid should be an efficient agent to transport HFSE,consistent with the fact that primitive arc basalt have higher concentrations of HFSE relative to MORB

The second part is using Nb/Ta fractionation to constrain the depth at which basaltic magmas transform into andesitic and silicic magma at subduction zones. The motivation is Nb/Ta ratios decrease as arc magma evolves. Rutile-bearing arclogite (garnet+cpx+rutile) and amphibole crystallization are thought to lower Nb/Ta ratio in melts. We experimentally showed that rutile could not impart lower Nb/Ta values in melt as result of higher compatibility of Ta relative to Nb in rutile. We also compiled abundant data of Nb/Ta and Dy/Yb for arc lavas and they show positive correlation. Such trend indicates fractionation of amphibole instead of rutile causes lowers Nb/Ta ratios in evolved magmas. Hence the chemical differentiation from primary basaltic to average andesitic compositions of the continental crust mainly occurred in the stability field of amphibole rather than garnet.

The third part is about how slab decarbonates at subarc depths. We experimentally determined the phase relations of carbonated pelites under fluid-saturated conditions and of ophicarbonate. The results show that water significantly depresses the solidus of carbonated rocks and hydrous carbonatitic liquids appear at temperatures as low as 800℃. In the framework of the previously constructed dehydration history of subducting slab and slab thermal structure, hydrous carbonatitic liquid is examined to be a pervasive agent to transfer carbon from the slab to the subarc mantle.

PROJECT ACTIVITY

Year	Project
2021-2022	Principal investigator, Experimental study on Nb/Ta fractionation during arc magma evolution founded by National Natural Science Foundation
2022-2025	Participation, The genetic connection between Subduction carbon cycle of Western Pacific plate and decratonic gold deposits founded by National Natural Science Foundation
2021-2023	Participation, Continental evolution and monsoon system evolution founded by National Natural Science Foundation

PATENTS

Patent

CONGRESSES AND SEMINARS

Date	Title	Place
September 2023	Pervasive hydrous carbonatitic liquids mediate transfer of carbon from the slab to the subarc mantle	Presented at Habitable Earth – Geoscience for Sustainability in Qingdao, China.
April 2023	Melting behavior of carbonated pelite and implications for deep carbon cycle in the subduction zones	18th Meeting of Chinese Society for Mineralogy Petrology and Geochemistry, Hefei, China
July 2023	Pervasive hydrous carbonatitic liquids mediate transfer of carbon from the slab to the subarc mantle	Showing poster at Goldschmidt Conference 2023 in Lyon, France (online)
June 2023	Deep carbon cycle at subduction zones	Invited speaker at Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China.
October 2022	Pervasive hydrous carbonatitic liquids mediate transfer of carbon from the slab to the subarc mantle	Keynote speaker at Annual Meeting of Chinese Geoscience Union, online.
April 2019	Zircon solubility in supercritical subduction fluids	Presented at 17th Meeting of Chinese Society for Mineralogy Petrology and Geochemistry in HangZhou, China.
April 2019	Zircon solubility in $KAlSi_3O_8$-H_2O supercritical fluids: Implications for HFSE mobility in subduction zones	Showing poster at European Geosciences Union General Assembly 2019 in Vienna, Austria.

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PUBLICATIONS

Books
[title, place, publishing house, year …]
[title, place, publishing house, year …]
[title, place, publishing house, year …]

Articles in reviews
Wei Chen, Shantanu Keshav, Weigang Peng, Guoliang Zhang. (2023). Coupled cycling of carbon and water in the form of hydrous carbonatitic liquids in the subarc region. Journal of Geophysical Research: Solid Earth, 128(10), e2023JB026681
Wei Chen,Guoliang Zhang, Shantanu Keshav, Yuan Li. (2023). Pervasive carbonatitic melt mediate transfer of carbon from the slab to the subarc mantle, Communications in Earth & Environment, 4(73)
Wei Chen, Guoliang Zhang, Eiichi Takahashi, Li Li. (2023). Flux melting of subducting carbonated

sediments: An experimental study. Geosystems and Geoenvironment,100218
Wei Chen, Xiaolin Xiong, Eiichi Takahashi. (2021). Zircon solubility in solute-rich supercritical fluids and Zr transfer from slab to wedge in the deep subduction process. Journal of Geophysical Research: Solid Earth, 126, e2021JB021970
Wei Chen, Guoliang Zhang, Mengfei Ruan, Shuai Wang, Xiaolin Xiong (2021). Genesis of intermediate and silicic arc magmas constrained by Nb/Ta fractionation. Journal of Geophysical Research: Solid Earth, 126, e2020JB020708.
Wei Chen, Xiaolin Xiong, Jintuan Wang, Shuo Xue, Li Li, Xingcheng Liu et al. (2018). TiO_2 solubility and Nb and Ta partitioning in rutile-silica-rich supercritical fluid systems: Implications for subduction zone processes. Journal of Geophysical Research: Solid Earth, 123, 4765–4782
Xiaolin Xiong, Xingcheng Liu, Li Li, Jintuan Wang, **Wei Chen**, Mengfei Ruan, Ting Xu, Zhongxing Sun, Fangfang Huang, Jianping Li, Lei Zhang. (2020). The partitioning behavior of trace elements in subduction zones: Advances and prospects, Science China Earth Sciences, 63: 1938-1951
Xiaolin Xiong, Huaiwei Ni, **Wei Chen**, Mengfei Ruan, Jintuan Wang, Xingcheng Liu, Li Li. (2020). Element migration of supercritical fluids in subduction zones: progress and problems of experimental researches, Bulletin of Mineralogy, Petrology and Geochemistry, 39(3). In chinese with english abstract.

Congress proceedings
[title, structure, place, year]
[title, structure, place, year]
[title, structure, place, year]

OTHER INFORMATION

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

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Place and date: Qingdao, China, 21/12/2023