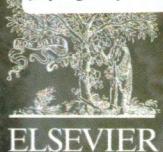


ПИ  
L 81



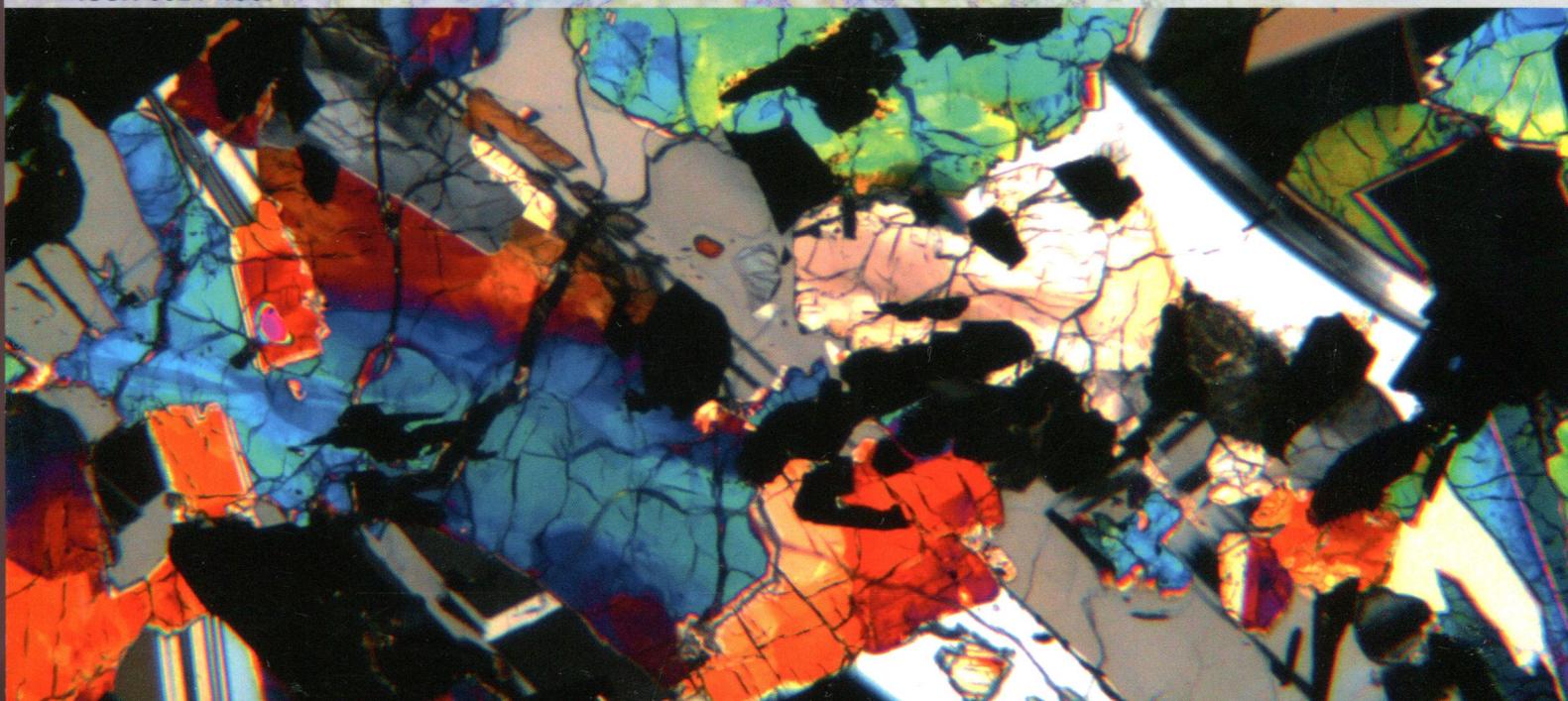
# LITHOS

An International Journal of Petrology,  
Geochemistry and Mineralogy

VOLUMES 190–191

MARCH 2014

ISSN 0024-4937



[www.elsevier.com/locate/lithos](http://www.elsevier.com/locate/lithos)

(Abstracted/Index in: AGI's *Bibliography and Index of Geology*, *Bulletin Signalétique*, *Chemical Abstracts*, *Current Contents*, *Geo Abstracts*, and *Mineralogical Abstracts*. Also covered in the abstract and citation database Scopus®. Full text available on ScienceDirect®)

*Invited Review Papers*

- The role of detrital zircons in Hadean crustal research  
 O. Nebel, R.P. Rapp and G.M. Yaxley ..... 313
- High temperature silicon isotope geochemistry  
 P.S. Savage, R.M.G. Armitage, R.B. Georg and A.N. Halliday ..... 500

*Regular Articles*

- Partial melting of metabasic rocks in Val Strona di Ormeaga, Ivrea Zone, northern Italy  
 B.E. Kunz, T.E. Johnson, R.W. White and C. Redler ..... 1
- Lead isotope variability of fine-grained river sediments in Tibetan Plateau water catchments: Implications for geochemical provinces and crustal evolution  
 H. Tan, J. Chen, W. Rao, J. Yang, J. Ji and A.R. Chivas ..... 13
- New constraints on the origin of the Skaergaard intrusion Cu–Pd–Au mineralization: Insights from high-resolution X-ray computed tomography  
 B. Godel, N.S. Rudashevsky, T.F.D. Nielsen, S.J. Barnes and V.N. Rudashevsky ..... 27
- Geochronology, geochemistry and petrogenesis of Early Permian alkaline magmatism in the Eastern Tianshan: Implications for tectonics of the Southern Altaiids  
 Q. Mao, W. Xiao, T. Fang, B.F. Windley, M. Sun, S. Ao, J. Zhang and X. Huang ..... 37
- Multistage crust–mantle interactions during the destruction of the North China Craton: Age and composition of the Early Cretaceous intrusions in the Jiaodong Peninsula  
 H. Tang, J. Zheng, C. Yu, X. Ping and H. Ren ..... 52
- Zircon U–Pb geochronology and Hf isotopes of major lithologies from the Jiaodong Terrane: Implications for the crustal evolution of the Eastern Block of the North China Craton  
 M. Wu, G. Zhao, M. Sun, S. Li, Z. Bao, P.Y. Tam, P.R. Eizenhöfer and Y. He ..... 71
- Zircon U–Pb geochronology, geochemistry, and Sr–Nd–Hf isotopes of granitoids in the Yulekenhalasu copper ore district, northern Junggar, China: Petrogenesis and tectonic implications  
 F. Yang, F. Chai, Z. Zhang, X. Geng and Q. Li ..... 85
- Magmatic–hydrothermal molybdenum isotope fractionation and its relevance to the igneous crustal signature  
 N.D. Greber, T. Pettke and T.F. Nägler ..... 104
- Internal architecture and Fe–Ti–V oxide ore genesis in a Variscan synorogenic layered mafic intrusion, the Beja Layered Gabbroic Sequence (Portugal)  
 A.P. Jesus, A. Mateus, J.M. Munhá and C. Tassinari ..... 111
- High level triggers for explosive mafic volcanism: Albano Maar, Italy  
 J.K. Cross, E.L. Tomlinson, G. Giordano, V.C. Smith, A.A. De Benedetti, J. Roberge, C.J. Manning, S. Wulf and M.A. Menzies ..... 137
- The evolution of a mid-crustal thermal aureole at Cerro Toro, Sierra de Famatina, NW Argentina  
 P.H. Alasino, C. Casquet, M.A. Larrovere, R.J. Pankhurst, C. Galindo, J.A. Dahlquist, E.G. Baldo and C.W. Rapela ..... 154
- Increased mantle heat flow with on-going rifting of the West Antarctic rift system inferred from characterisation of plagioclase peridotite in the shallow Antarctic mantle  
 A.P. Martin, A.F. Cooper and R.C. Price ..... 173

(contents continued on inside back cover)



(contents continued)

Primary magmatic calcite reveals origin from crustal carbonate	191
F. Gozzi, M. Gaeta, C. Freda, S. Mollo, T. Di Rocco, F. Marra, L. Dallai and A. Pack	
Age constraints on late Mesozoic lithospheric extension and origin of bimodal volcanic rocks from the Hailar basin, NE China	204
S.-Q. Li, E. Hegner, Y.-Z. Yang, J.-D. Wu and F. Chen	
Origin of andesitic rocks: Geochemical constraints from Mesozoic volcanics in the Luzong basin, South China	220
L. Chen, Z.-F. Zhao and Y.-F. Zheng	
Petrogenesis of Cretaceous adakite-like intrusions of the Gangdese Plutonic Belt, southern Tibet: Implications for mid-ocean ridge subduction and crustal growth	220
Y.-c. Zheng, Z.-q. Hou, Y.-l. Gong, W. Liang, Q.-Z. Sun, S. Zhang, Q. Fu, K.-X. Huang, Q.-Y. Li and W. Li	
AFC3D: A 3D graphical tool to model assimilation and fractional crystallization with and without recharge in the R environment	240
S. Guzmán, R. Carniel and P.J. Caffé	
Origin of oscillatory zoned garnets from the Xieertala Fe–Zn skarn deposit, northern China: <i>In situ</i> LA–ICP–MS evidence	249
D.-G. Zhai, J.-J. Liu, H.-Y. Zhang, J.-P. Wang, L. Su, X.-A. Yang and S.-H. Wu	
Metamorphic <i>P</i> – <i>T</i> conditions across the Chugach Metamorphic Complex (Alaska)—A record of focussed exhumation during transpression	279
E. Bruand, D. Gasser and K. Stüwe	
Age and geochemistry of western Hoh-Xil–Songpan-Ganzi granitoids, northern Tibet: Implications for the Mesozoic closure of the Paleo-Tethys ocean	292
L.-Y. Zhang, L. Ding, A. Pullen, Q. Xu, D.-L. Liu, F.-L. Cai, Y.-H. Yue, Q.-Z. Lai, R.-D. Shi, M.N. Ducea, P. Kapp and A. Chapman	
Lower crustal differentiation processes beneath a back-arc spreading ridge (Marsili seamount, Southern Tyrrhenian Sea)	328
T. Trua, M. Marani and D. Barca	
Petrogenesis of the Late Triassic volcanic rocks in the Southern Yidun arc, SW China: Constraints from the geochronology, geochemistry, and Sr–Nd–Pb–Hf isotopes	349
C.-B. Leng, Q.-Y. Huang, X.-C. Zhang, S.-X. Wang, H. Zhong, R.-Z. Hu, X.-W. Bi, J.-J. Zhu and X.-S. Wang	
Permo-Triassic anatexis, continental rifting and the disassembly of western Pangaea	363
R. Cochrane, R. Spikings, A. Gerdes, A. Ulianov, A. Mora, D. Villagómez, B. Putlitz and M. Chiaradia	
Melting of a subduction-modified mantle source: A case study from the Archean Marda Volcanic Complex, central Yilgarn Craton, Western Australia	383
P.A. Morris and C.L. Kirkland	
Deep subduction of continental crust in accretionary orogen: Evidence from U–Pb dating on diamond-bearing zircons from the Qinling orogen, central China	403
H. Wang, Y.-B. Wu, S. Gao, J.-P. Zheng, Q. Liu, X.-C. Liu, Z.-W. Qin, S.-H. Yang and H.-J. Gong	
The Permian–Triassic granitoids in Bayan Obo, North China Craton: A geochemical and geochronological study	420
M.-X. Ling, H. Zhang, H. Li, Y.-L. Liu, J. Liu, L.-Q. Li, C.-Y. Li, X.-Y. Yang and W. Sun	
Magma differentiation fractionates Mo isotope ratios: Evidence from the Kos Plateau Tuff (Aegean Arc)	430
A.R. Voegelin, T. Pettke, N.D. Greber, B. von Niederhäusern and T.F. Nägler	
Tectono-metamorphic evolution of the Jomolhari massif: Variations in timing of syn-collisional metamorphism across western Bhutan	440
D. Regis, C.J. Warren, D. Young and N.M.W. Roberts	
Petrogenesis of Late Mesozoic granitoids and coeval mafic rocks from the Jiurui district in the Middle–Lower Yangtze metallogenic belt of Eastern China: Geochemical and Sr–Nd–Pb–Hf isotopic evidence	449
Y.-M. Xu, S.-Y. Jiang, Z.-Y. Zhu, S.-Y. Yang and W. Zhou	
Zircon U–Pb and Hf isotopic studies of the Xingxingxia Complex from Eastern Tianshan (NW China): Significance to the reconstruction and tectonics of the southern Central Asian Orogenic Belt	467
Z.-Y. He, Z.-M. Zhang, K.-Q. Zong, H. Xiang, X.-J. Chen and M.-J. Xia	
Errata	485
Corrigendum to “Chromitites in ophiolites: How, where, when, why? Part II. The crystallisation of chromitites”	
J.M. González-Jiménez, W.L. Griffin, J.A. Proenza, F. Gervilla, S.Y. O'Reilly, M. Akbulut, N.J. Pearson and S. Arai	
Corrigendum to “Low temperature hydrothermal oil and associated biological precursors in serpentinites from Mid-Ocean Ridge” [Lithos 178 (2013) 84–95]	520
V. Pasini, D. Brunelli, P. Dumas, C. Sandt, J. Frederick, K. Benzerara, S. Bernard and B. Ménez	
Corrigendum to “Miocene–Quaternary volcanism and geodynamic evolution in the Pannonian Basin and the Menderes Massif: A comparative study [Lithos 180–181 (2013) 25–42]”	
I. Seghedi, Y.E. Ersoy and C. Helvacı	
	522