

V 地球惑星システム学専攻  
・地球惑星システム学科



	27		
	27		
	27	12	Das Kaushik
	28		
1 地球惑星システム学専攻	28	29	( )
	28		
1-1 専攻の理念と目標	28	31	

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## 1-2 専攻の組

### 1-3 専攻の大学院教育

#### 1-3-1. 大学院教育の目標とアドミッション・ポリシー

#### 1-3-2 大学院

1-3-3. 大学院生の国内学会発表実績

27 68 41 22

1-3-4. 大学院生の国際学会発表実績

27

1-3-5. 修士論文発表実績

27 13

"A simple fault thermometer based on carbonaceous matter reflectance and its application for frictional heating by faulting

"

Sr

"Iguanodontia footprints from the Lower Cretaceous Tetori Group

( )"

"A comparison of ore minerals from the Letnye, Molodezhnoe and Djusina volcanogenic massive sulfide deposits in the South Urals, Russia

Letnye, Molodezhnoe, Djusina

"

Finero

1-3-6. 博士学位

27

Shock Compression of Earth Materials and Implications for the Composition of the Earth's Deep Interior

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1-3-7. TAの実績

27 24

### 1-3-8. 大学院教育の国際化

## 1-4 専攻の研究活動

### 1-4-1. 研究活動の概要

#### (1) 講演会

1 7	Introduction of Hiroshima University and our innovation program for collaboration	Das Kaushik, GHOSH Gautam	
3 16			
3 18	Episodic tremor and slip near the Japan trench		

(2) 学術団体等からの受賞実績

(3) 学生の受賞実績

9 12	122	
10 19	30	
2 20	167	
3 15		

(4) 研究成果の社会への還元実績

9 17		
9 27	27	
10 22		
1 30		
1 24 2 22 2 28	27	
3 21	27	
3 19		Das Kaushik

(5)



Nagavalli- Vamsadhara Shear Zone Granitoid	S. Karmakar	Das Kaushik
Precambrian Basin	P.P. Chakraborty	Das Kaushik
CITZ G-T Shear Zone	A. Chattopadhyay	Das Kaushik
Geospeedometer	J. Ganguly Arizona	Das Kaushik
Rengali	G. Ghosh	Das Kaushik
	H. He	
	F. Liu	
	M. Koenig	
VMS	V. Udachin	
	Arancibia	

(7) 日本学術振興会特別研究員 (JSPS-DC, JSPD-PD) 。ポスト



_____	-		pp. - 14
_____	-	pp. <del>42-52</del>	
_____	-		pp. <del>58-72</del>
_____	-		pp. <del>100-113</del>
_____	-	pp. <del>129-131</del>	
_____	-		pp. <del>228-241</del>

○総説・解説

\_\_\_\_\_ 2016 . ISOTOPE NEWS 742 , 33-37.

○特許・その他

○国際会議での招待・依頼・特別講演

Hidaka H. Progress and perspective of REE isotopic studies for cosmochemistry. Invited seminar (Kolkata, India, January 7, 2016 100 )

Miyahara M. and Ohtani E. Application of a FIB system to ultra-high-pressure Earth and planetary sciences. The 2015“ New Frontier in Studying Chemistry under Extreme Conditions: Applications of FIB (Focused ion beam) Technology” workshop (Shanghai China, May 21 - 22, 2015, 50 ),

Miyahara M., Ohtani E. and Yamaguchi A. Evidence for shock-induced metamorphism on CB parent-body. The 13th International Workshop on Water Dynamics (Sendai, Japan, March 15 - 17, 2016 50 )

Shiraishi F., Mitsunobu S., Suzuki K., Hoshino T., Morono Y., Inagaki F. Dense microbial community on a ferromanganese nodule from the ultra-oligotrophic South Pacific Gyre: Implications for biogeochemical cycles. International Workshop on Manganese Minerals (Kochi Japan, March 18, 2016 100 )

Shiraishi F. Carbonate, iron and manganese mineralization. Course in Chemical / Microbial Carbonate Sedimentology Curitiba, Brazil, February 29 - March 5, 2016 100

Shiraishi F. Microbialites (formation process, classification and history). Course in Chemical / Microbial Carbonate Sedimentology, Curitiba Curitiba, Brazil, February 29 - March 5, 2016 100

○国際会議での一般講演

Hidaka H. and Yoneda S. Systematic isotopic variations of Sr, Ba and REE of surficial lunar soils. The 78th Annual Meeting of the Meteoritical Society (Berkeley, USA, July 27 - 31, 2015, 500 ).

Hidaka H. and Yoneda S. Barium isotopic heterogeneity in the solar system. Goldschmidt Conference

- 2015 (Prague, Czech Republic, August 16 - 21, 2015, 3,500 )
- Hidaka H., Higuchi T. and Yoneda S. Redistribution of alkaline elements in chondrules of the Sayama (CM2) meteorite: Possible alteration effect in association with aqueous activity in the early solar system. The 47th Lunar and Planetary Science Conference (The Woodlands, TX, USA, March 21 - 25, 2016, 3,000 ).
- Miyahara M., Yamaguchi A., Ohtani E. and Saitoh M. The systematic investigations of high-pressure polymorphs in shocked L type ordinary chondrites. The 6<sup>th</sup> Symposium on Polar Science (Tachikawa Japan, November 16 - 17, 2015, 50 )
- Miyahara M. High-pressure polymorphs of silica in shocked meteorites and their implications. Japan Geoscience Union meeting 2015 (Makuhari Japan, May 24 - 28, 2015, 6,600 )
- Ozawa S., Miyahara M., Ohtani E., Ito Y., Suzuki A., Kimura M., Koroleva O.N., Litasov K. and Pokhilenko N.P. Jadeite in shocked meteorites: various textures and formation processes. Japan Geoscience Union meeting 2015 (Makuhari Japan, May 24 - 28, 2015, 6,600 )
- Suga H., Takeichi Y., Miyamoto C., Mase K., Ono K., Takahashi Y. and Miyahara M. Investigation of Organic Matter in the Allende Meteorite using Scanning Transmission X-ray Microscope at Photon Factory. The 6<sup>th</sup> Symposium on Polar Science (Tachikawa Japan, November 16 - 17, 2015, 50 )
- Tsukiji Y., Azuma Y., Shiraishi F. Ornithopods Footprints from the Kitadani Formation, Tetori Group, Katsuyama City, Fukui. The 2nd International Symposium on Asian Dinosaurs (Bangkok, Thailand, November 19 - 24, 2015, 500 )

○国内学会での招待・依頼・特別講演

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○国内学会での一般講演

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○原著論文

acid formation through impacts of meteorites on the early ocean. *Earth Planet. Sci. Lett.*, **429**, 216-222.

Suzuki C., Y. Furukawa, T. Kobayashi, T. Sekine, H. Nakazawa and T. Kakegawa. (2015) Shock wave synthesis of amino acids from solutions of ammonium formate and ammonium bicarbonate. *Geochemistry, Geophysics, Geosystems*. **15**, 2382-2394.

Yoshimura Y., M. Shigemi, M. Takaku, M. Yamamura, T. Takekiyo, H. Abe, N. Hamaya, D. Wakabayashi, K. Nishida, N. Funamori, T. Sato and T. Kikegawa. (2015) Stability of the liquid state of imidazolium-based ionic liquids under high pressure at room temperature, *J. Phys. Chem. B*, **119**, 8146-8153, 2015

### ○著書

Sekine T. (2016), Experimental methods of shock wave research for solids. In *Hypervelocity Launchers, Shock Wave Science and Technology Reference Library Vol. 10* ed. by F. Seifler and O. Igra, 55-76, Springer.

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<u>Das Kaushik</u>	-		—	40	- pp. 73-85
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_____	-			pp. 134-159	
_____	-			pp. 160-175	
_____	-	pp. 196-211			

### ○国際会議での招待・依頼・特別講演

Nakagawa, T., H. Iwamori, T. Nakakuki, Is the lower mantle dry or hydrous? – Insight from global-scale water circulation in the mantle inferred from numerical modeling, *Goldschmidt Conference 2015*, (Prague, Czech. August, 16 - 21, 2015, 2, 500 )

### ○国際会議での一般講演

Obata, M., T. Mashimo, J. Ando, L. Chen and T. Yamamoto, Shock compression experiment of forsterite: pulverization and frictional melting in a shear regime. *American Geophysical Union, Fall Meeting* (San Francisco, USA, December 14 - 18, 2015, 24, 000 )

Sekine, T., Incongruent reactions in warm dense silicate melts. *Warm dense matter 2015* (Kurashiki, June 8, 2015, 150 )

Sekine, T., R. Tachi, K. Shibuya, R. Mihara and T. Kobayashi, Impact-induced degassing from antigorite and carbonates: Implications to formation of planetary atmosphere. *APS SCCM 2015* (Tampa, FL,



- June 16, 2015 600 )
- Chang, Y., M. Kayama, E. Tajika, Y. Sekine, T. Sekine, H. Nishido and T. Kobayashi, Shock-induced change in cathode-luminescence spectra for experimentally shocked quartz. *78<sup>th</sup> Annual Meeting of Meteoritical Society* (Berkeley, July 27 - 31, 2015 1,000 )
- Sekine, Y., K. Kodama, S. Obata, T. Kobayashi, N.O. Ogawa, Y. Takano, N. Ohkouchi, K. Saiki and T. Sekine Impact-induced alterations of planetary organic and ice simulants. *AOGU 12<sup>th</sup> Annual Meeting, Asia Oceania Geoscience Society* (Singapore, August 2 - 7, 2015 1,000 )
- Tange, Y., N. Ozaki, T. Matsuoka, T. Ogawa, B. Albertazzi, H. Habara, K. Takahashi, S. Matsuyama, K. Yamauchi, K.A. Tanaka, R. Kodama, T. Sato, T. Sekine, Y. Seto, T. Okuchi and T. Yabuuchi, *In situ* XFEL measurement system for Earth and planetary materials under laser-induced ultrahigh-pressure conditions. *American Geophysical Union, Fall Meeting* (San Francisco, USA, December 14 - 18, 2015 24,000 )
- Furukawa, Y., H. Nakazawa, T. Sekine, T. Kobayashi and T. Kakegawa, Meteorite impacts and abiotic formation of RNA components Pacificchem 2015. *International Chemical Congress of Pacific Basin Societies* (Honolulu, Hawaii, USA, Dec 15 - 20, 2015 2,500 )
- Saha, S., P.P. Chakraborty, K. Das, Felsic volcanism from two Mesoproterozoic sedimentary basins of India: Signature for subduction-related outgrowth in Supercontinent? Columbia? *XII International Symposium on Antarctic Earth Sciences* (Goa, India, July 13 - 17, 2015 200 ) .
- Bose, S., K. Das, M. Arima, J. Torimoto, The ca. 780 Ma reworking of the UHT metamorphosed lower crust of the Eastern Ghats Belt and its implication for the breakup of Rodinia. *XII International Symposium on Antarctic Earth Sciences* (Goa, India, July 13 - 17, 2015 200 )
- Chatterjee, A., H. Hidaka, K. Das, S. Bose, Geochronology (zircon U-Pb SHRIMP-IIe and monazite CHIME-EPMA) of western boundary of Eastern Ghats Granulite Belt, India. *1st Japan-Korea SHRIMP meeting*, (Hiroshima, September 14-16, 2015 50 ) .
- Das, K., K. Horie, S. Saha, Y. Tsutsumi, P. P. Chakraborty and H. Hidaka, Detrital zircon geochronology of Mesoproterozoic basins at the East Indian Cratonic margin: tracking provenance, its shift and inter-basinal correlation. *1st Japan-Korea SHRIMP meeting*, (Hiroshima, September 14 - 16, 2015 50 ) .
- Sato, T., T. Sekine, Y. Tange, N. Ozaki, T. Matsuoka, H. Habara, T. Yabuuchi, K. Tanaka, T. Ogawa, R. Kodama, T. Okuchi, Y. Seto, Y. Inubushi, T. Togashi and M. Yabashi, X-ray diffraction observation of shock-compressed quartz, *7th International Workshop on Warm Dense Matter*, (Kurashiki, Japan, Jun 8 - 13, 2015 70 )

○国内学

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Furukawa, Y., H. Nakazawa, <u>T. Sekine</u> , T. Kobayashi and T. Kakegawa, Formation of nucleobases and amino acids by meteorite impacts on early Earth						2015
24 28	6 600					
Mutou, D., <u>T. Sekine</u> , T. Kobayashi, T. Mashimo and H. Ohfuji, Experimental confirmation of ringwoodite crystallization from shock-induced melts						2015
24 28	6 600					
Masahiro, K., T. Naotaka, O. Eiji, Y. Seto, J. Fufuda, <u>T. Sekine</u> , M. Miyahara, S. Ozawa, A. Miyake, K. Tomeoka, J. G'otze and H. Nishido, Traces of water in lunar meteorite						
2015	24 28	6 600				
Umeda, Y., K. Eiro, <u>T. Sekine</u> , T. Amimoto and T. Kobayashi, Shock-induced Strecker Reactions for prebiotic amino acid formation: Experimental simulations						2015

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J. Götze T. J. Faga  
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400 X 56 XFEL  
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300 GPa MgO 56  
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Zhang. Y., T. Sekine, H. He, F. Liu and X. Zhou, Shock temperature measurements and melting for Fe-alloys by optical pyrometry. 2015 11 10-12 400

Albertazzi B. Benuzzi-Mounaix A. Denoëud A. Gregori G. Hartley N.  
Koenig M.

56 2015 11 10-12 400 XFEL

Albertazzi, B., N. Ozaki<sup>1</sup>, V. Zhakhovsky, K. Takahashi, H. Habara<sup>1</sup>, Y. Tange, S. Matsuyama, Y. Sano, K. Yamauchi, A. Faenov, T. Pikuz, Y. Kubota, Y. Fujimoto, Y. Matsumura, T. Nishikawa, S. Noma, R. Ochante, T. Ogawa, Y. Yoshida, O. Sakata, Y. Umeda, T. Sekine, Y. Inubushi, T. Yabuuchi, T. Togashi, T. Katayama, M. Yabashi, A. Krygier, N.J. Hartley, M. Harmand, E. McBride, G. Morard, M. Koenig, K. A. Tanaka, D. Ilnitsky, N. Inogamov, and R. Kodama First Experimental Observation of phase transition in tantalum from bcc to orthorhombic Pnma structure. **56** **2015**  
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 Chatterjee, A., H. Hidaka, K. Das, S. Bose, Geochronology (Zircon U-Pb SHRIMP-IIe and monazite CHIME-EPMA) of western boundary of Eastern Ghats Granulite Belt, India. **2015**  
 , **2015** 9 16 18 , 400

Miyanari, A., H. Hidaka, K. Das, Bose, S., Geochronology and stages of tectonic evolution from southern boundary of Western Dharwar Craton, India. **122** **2015**  
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地球環境・資源学グループ

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○原著論文

Liang, Y. and Hoshino, K. (2015) Thermodynamic calculations of  $Au_xAg_{1-x}$  – fluid equilibria and their implications for ore-forming conditions. *Applied Geochemistry*, 52, 109-117.  
 \_\_\_\_\_ **2016** , **61**, ~~69~~ 77.

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 \_\_\_\_\_ **2015**  
 , **24**, 318-325

Katayama, I., Kubo, T., Sakuma, H. and Kawai, K. (2015) Can clay minerals account for the behavior of non-asperity on the subducting plate interface? *Progress in Earth and Planetary Science*, **2**, doi:10.1186/s40645-015-0063-4.

Kawai, K., Sakuma, H., Katayama, I. and Tamura, K. (2015) Frictional characteristics of single and polycrystalline muscovite and influence of fluid chemistry. *Journal of Geophysical Research*, **120**, doi:10.1002/2015JB012286.

2015

, 124

371-396

Okazaki, K. and Katayama, I. (2015) Slow stick-slip of antigorite serpentinite under hydrothermal conditions as a possible mechanism for slow earthquakes. *Geophysical Research Letter*, **42**, 1099-1104, doi:10.1002/2014GL062735.

Kim, D., Katayama, I., Wallis, S., Michibayashi, K., Miyake, A. and Seto, Y. (2015) Deformation microstructures of glaucophane and lawsonite in experimentally deformed blueschists: Implications for intermediate-depth intraplate earthquakes. *Journal of Geophysical Research*, **120**, 1229-1242, doi:10.1002/2014JB011528.

○著書

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pp. 86-97

pp. 176-191

pp. 192-193

○総説・解説

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○特許・その他

○国際会議での招待・依頼・特別

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2015

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## ○国内学会での一般講演

\_\_\_\_\_ Udachin, V. Ayupova, N. Zhukov, I. \_\_\_\_\_ A study on the Yubileinoe volcanogenic  
massive sulfide deposit, South Urals, Russia 65 2015

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## 1-4-3. 各種研究員と外国人留学生の受入状況

Liu Yunxi

2015

2016

Amitava Chatterjee

2015

2018

Rosmarie Eigl

2014

2017

2012

10

2015

Rasha Amer

2015

2016

## 1-4-4. 研究助成金の受入状況

競争的資金の取得実績

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A 2014-2016

2014-2016

SHRIMP

A 2012-2016

C 2015-2017

C 2013-2015

U-Pb

B 2014-2016

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B 2015-2017

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B 2015-2017

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B 2015-2017

Das Kaushik

2014-2016

SHRIMP

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C 2014-2016

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B 2013-2016

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全国共同利用実績

Photon Factory



#### 1-4-5. 学界ならびに社会での活

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2016

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2015 19 DNA  
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2015 19  
2015 21  
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2016 500 1,000

## 2 地球惑星システム学科

### 2-1 学科の理念と目標

### 2-2 学科の組織

DAS Kaushik

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### 2-3 学科の学士課程教育

#### 2-3-1. アドミッション・ポリシーとその目標

24

#### 2-3-2 学士課程

**2-3-3. 学士課程教育の成果とその検証**

**2-3-3-1. 教育内容**

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**2-3-3-2. 進学・就職状況**

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**2-3-4. 卒業論文発表実績**

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U-Pb

Erro-Tobbio

Vredefort Crater

Tissint, Zagami, NWA 6162 STXM

Pb-Zn-Ag-Au

U-Pb

"Experimentally Deduced Frictional Coefficient and Slickenside of Gabbro

"

H-type

NWA 7397

## 地球惑星システム(課程前期)

表中の数字は、単位数を表す。

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地球惑星科学教育

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地球惑星システム学専攻(博士課程後期)

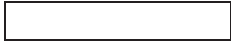
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# 地球惑星システム学プログラム履修要領

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地球科学野外巡検A	1	①							
水圏地球化学	2	②							
地球テクトニクス	2		②						
地球惑星物質学	2			②					
構造地質学	2				②				
層相進化学	2				②				
地球惑									