Kai Narita

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EDUCATION

Tokyo Institute of Technology (Tokyo, Japan) / Apr 2014 - Mar 2016
Master of Engineering in Metallurgy and Ceramics Science, GPA: 3.72/4.00
Tokyo Institute of Technology (Tokyo, Japan) / Apr 2010 - Mar 2014
Bachelor of Engineering in Metallurgical Engineering, GPA: 3.80/4.00 (the top grade)
Completion of Global Scientists and Engineers Course
Completion of Medical Engineering Course

RESEARCH EXPERIENCE

Tokyo Institute of Technology (Tokyo, Japan)/ Oct 2012 - Mar 2016
Bachelor's and Master's Thesis Research, under Prof. Equo Kobayashi

- Developed Mg/β-tricalcium phosphate (β-TCP) composites by ball milling and spark plasma sintering (SPS) for biodegradable applications
- Elucidated effects of sintering behavior involving reactions on mechanical properties of Mg/β-TCP composites
- Elucidated effects of *in vitro* corrosion on mechanical integrity of Mg/β-TCP composites
- Improved mechanical properties of Mg/β-TCP composites before and after *in vitro* corrosion
- Developed porous Mg using urea as a space holder for scaffolds by powder metallurgy

University of Wisconsin-Madison (WI, USA)/ Sept - Oct 2015
Visiting Researcher, under Prof. Sindo Kou

- Investigated liquation cracking during MIG welding of Mg alloys

University of California, Riverside (CA, USA)/ Jul - Sept 2014
Visiting Researcher, under Prof. Huinan Liu

- Evaluated corrosion properties and cytocompatibility of Mg/β-TCP composites

National Institute for Material Science (NIMS) (Tsukuba, Japan)/ Mar 2014 (one month)
Internship, under Dr. Sachiko Hiromoto

- Investigated effects of sintering temperatures of SPS on corrosion properties of pure Mg

NIPPON STEEL & SUMITOMO METAL (Hokkaido, Japan)/ Aug 2012 (one month)
Internship

- Developed continuous cooling transformation (CCT) phase diagrams of alloyed steels

RESEARCH CAPABILITIES (3.5 years lab experience)

Material fabrication:	Spark plasma sintering (SPS), planetary ball milling
Microstructural evaluation:	Optical microscopy, laser microscopy, scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy (EDS), electron probe micro analysis (EPMA), X-ray diffraction (XRD)
Mechanical evaluation:	Micro Vickers hardness test, compression test
Corrosion and biological evaluation:	Electrochemical polarization test, electrochemical impedance spectroscopy, pH meter, cell culture, fluorescence microscopy

Thermal analysis: Differential scanning calorimetry (DSC), differential thermal analysis (DTA), thermogravimetry (TG)

Computer: Image J, Microsoft Office, GIMP, Origin

SCHOLARSHIPS

Takenaka Foundation Scholarship/ Sep 2016 - Aug 2021

Scholarship for PhD program from 2016 fall for 2 years with the possibility of extension

-Tuition: max. 2.5 million Japanese Yen (≈ 20 thousand dollars) per year

-Allowance: 2 million Japanese Yen (≈ 16 thousand dollars) per year

Asahi Glass Scholarship Foundation/ Apr 2014- Mar 2016

Tokyo Institute of Technology International Education and Research Program/Sep - Oct 2015

Scholarship for study abroad program/ July- Sept 2014

AWARDS

Best Poster Award in the 12th Young Metallurgist Workshop/ Nov 2015

Best Poster Award in the Master Course Interim Poster Presentation/ Sept 2015

Grand Prize in EURAXESS Science Slam Japan 2014/ Nov 2014

Excellent Student Award for Outstanding Academic Achievement/ Mar 2014

Given to one student in each department from Tokyo Institute of Technology (undergraduate)

The Best Presentation Award for Bachelor's Thesis/ Mar 2014

Nittono Award/ Mar 2014

Given to one student who earned the most credits in three departments related to materials science from Tokyo Institute of Technology (undergraduate)

HONORS

Invited talk at the 63rd Japan Society of Applied Physics Spring Meeting 2016/ Mar 2016

Exchange program with Dalian Institute of Technology (Dalian, China) /Mar 2013 (one week)

Honor given to top 10% of department juniors

Special junior-year early admission to senior-year laboratory/ Oct 2012

Honor given to top 10% of department juniors

PUBLICATIONS

1. K. Narita, E. Kobayashi, T. Sato Mechanical Properties Before and After in Vitro Corrosion for Mg/β-TCP Composites Fabricated by Spark Plasma Sintering, *Proceedings of 24th International Symposium on Processing and Fabrication of Advanced Materials (peer-reviewed)* **2015**, p. 69-78
2. K. Narita, E. Kobayashi, T. Sato Microstructure, Initial Strength and Mechanical Integrity of Mg/β-TCP Composites Fabricated by Spark Plasma Sintering, *Proceedings of the Biomaterials International Conference 2015 (peer-reviewed)* **2015** (digital media)
3. K. Narita, S. Suzuki, T. Kuno Creativity Laboratory in Metallurgy –Making Fuel Cell–, *Proceedings of AOTULE 2012 7th Student Conference* **2012,** p. 40
4. K. Narita, E. Kobayashi, T. Sato Sintering behavior and mechanical properties of Mg/β-tricalcium phosphate composites sintered by spark plasma sintering, *Materials (peer-reviewed)*/ submitted
5. N. Cao, K. Narita, E. Kobayashi, T. Sato Evolution of the microstructure and mechanical properties of Mg-matrix *in situ* composites during spark plasma sintering, *Materials Science & Engineering A (peer-reviewed)* / submitted
6. K. Narita, I. Johnson, Q. Tian, E. Kobayashi, H. Liu Corrosion properties and cytocompatibility

of Mg/β-tricalcium phosphate composites fabricated by spark plasma sintering/ in preparation for peer-reviewed journal

CONFERENCES / COMPETITION

1. 9th Pacific Rim International Conference on Advanced Materials and Processing

(Kyoto, Japan)/ expected Aug 2016

Co-author: Effect of β-TCP Size and Porosity on Mechanical Properties of Ti-6Al-4V/β-TCP Composites for Biomedical Applications

2. The 63rd Japan Society of Applied Physics Spring Meeting 2016

(Tokyo, Japan)/ expected Mar 2016

Invited talk: *subject undecided*

3. 24th International Symposium on Processing and Fabrication of Advanced Materials

(Osaka, Japan)/ Dec 2015

Oral presentation: Mechanical Properties Before and After *in Vitro* Corrosion for Mg/β-TCP Composites Fabricated by Spark Plasma Sintering

4. The 129th Conference of Japan Institute of Light Metals

(Tokyo, Japan)/ Nov 2015

Co-author: Effect of Preparation of β-TCP on Mechanical Properties of Ti-6Al-4V/β-TCP Composites for Biomedical Application Before and After Dissolution of β-TCP

5. The 12th Young Metallurgist Meeting

(Kanagawa, Japan)/ Nov 2015

Poster presentation: Microstructure and Strength Change due to Corrosion of Mg/Calcium Phosphates Composites (Best Presentation Award)

6. Biomaterials International 2015

(Kenting, Taiwan)/ June 2015

Oral presentation: Microstructure, Initial Strength and Mechanical Integrity of Mg/β-TCP Composites Fabricated by Spark Plasma Sintering

7. EURAXESS Science Slam Japan 2014

(Tokyo, Japan)/ Nov 2014

-Competition of science communication skills

Oral presentation: Na-rry Potter and Mg (Grand Prize)

8. The 127th Conference of Japan Institute of Light Metals

(Tokyo, Japan)/ Nov 2014

Oral presentation: Microstructure and Mechanical Properties of Mg/β-TCP Composites Fabricated by Spark Plasma Sintering

9. Asia-Ocean Top University League on Engineering (AOTULE) 2012 7th Student

Conference

(Kuala Lumpur, Malaysia)/ Nov 2012

Oral presentation: Creativity Laboratory in Metallurgy -Making Fuel Cell-