

1. Full name, phone number, email and date:

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July 21st 2021



2. Date and place of birth, citizenship, current address

Dec 15th 1982 (Damascus)

Syrian

School of Advanced Materials Science & Engineering, Sungkyunkwan University, Suwon 440-746, South Korea

3. Education and degrees awarded

Mar. 26th 2012 Doctor of Philosophy, Major in Applied Chemistry, Damascus University, Department of Chemistry.

Sep. 09th 2008 Master, Major in Applied Chemistry, Damascus University, Department of Chemistry.

Jan. 10th 2007 High Diploma, Major in General Chemistry, Damascus University, Department of Chemistry.

Sep. 20th 2005 Bachelors, major in Pure Chemistry, Damascus University, Department of Chemistry.

4. Current position

Assistant professor, Aug. 15th 2015 up to now

School of advanced materials science & engineering, *Sungkyunkwan University* (South Korea).

5. Previous work experience

2013-2015 **Postdoc in metallurgy** at School of materials science & engineering, Yeungnam University (South Korea). (Mar. 1st 2013 - Aug. 31st 2015)

2009-2012 **PhD student** supported by Damascus University. Thesis project supervised by Prof. Fawaz Deri. (Sep. 5th 2009 - Mar. 26th 2012)

6. Teaching

6.1 Modules taught in last 4 years at Sungkyunkwan University:

Module Code	Target	Module title
EAM2011	Undergraduate	Advanced materials process engineering
EAM2057	Undergraduate	Introduction into advanced materials engineering (I)
EAM2058	Undergraduate	Introduction into advanced materials engineering (II)
EAM3002	Undergraduate	Mechanical properties of advanced materials
EAM2018	Undergraduate	Metallic materials
EAM2008	Undergraduate	Advanced energy materials
EAM3063	Undergraduate	Electrochemistry in development of energy Materials
ISS3173	Undergraduate	Heat transfer (international summer semester at SKKU)
GEDB004	Undergraduate	Mathematics for engineering (I)
GEDB005	Undergraduate	Mathematics for engineering (II)
EAM5206	Graduate	Advanced mechanical metallurgy
EAM5729	Graduate	Physical metallurgy
EAM5205	Graduate	Advanced structure control engineering

6.2 Student evaluation:

The following table shows the student's evaluation and my last year (2019) education score at Sungkyunkwan University:

Curriculum Report				Confirmation of the chair (Department)		Confirmation of the Dean						
College	Engineering	Department	Advanced Materials Science and Engineering	Name	KOTIBA, HAMAD	Employee No.	225795	Class of Position	(Foreign) Assistant			
School	Semester	Credit	Credit Hour	Number of Instructor	Course Title	Course Code	Course Evaluation	Ratio of Participation	Course Syllabus	Number of Enrollee	Score for Lecture	Score for Instruction in Int'l Language
General graduate	1	3	3	1	Advanced Mechanical Metallurgy	EAM5206-41	0.0	0.0	Y	26	5	5
Undergraduate	1	3	3	1	Introduction to Advanced Materials Engineering 1	EAM2057-43	94.0	96.0	Y	62	5	5
Undergraduate	1	3	3	1	Mechanical Properties of Advanced Materials	EAM3002-43	95.0	90.0	Y	61	5	5
Undergraduate	2	3	3	1	Advanced Materials Process Engineering	EAM2011-42	95.0	98.0	Y	59	5	5
Undergraduate	2	3	3	1	Introduction to Advanced Materials Engineering 2	EAM2058-41	94.0	100.0	Y	58	5	5
General graduate	2	3	3	1	Phase Transformations	EAM5204-41	0.0	0.0	Y	42	5	5

- ❖ According to the SKK University, graduate classes are not included in the evaluation.
- ❖ A sealed full documents can be arranged when they are requested.
- ❖ The evaluations of previous years (2015-2018) can be arranged when they are requested.

- ✓ **2018: Top-ranked professor for education at the school of advanced materials science and engineering in SKKU.**
- ✓ **2019: Top-ranked professor for education at the school of advanced materials science and engineering in SKKU.**

7. Scientific and societal impact of research

7.1. Research areas/interests

- ❖ Artificial intelligence for designing advanced materials.
- ❖ Designing highly-ductile magnesium alloys based on machine learning aided by first-principle calculations and molecular dynamic simulations.
- ❖ Physical metallurgy of lightweight metals.
- ❖ Mechanical properties of ultrafine grained metals fabricated by severe plastic deformation methods.

7.2. Research grants (as principal investigator)

Year	Role	Grant	Project title	Grant organization	Grant amount
2020-2023	PI	2020R1A2C1004720	<i>Multitask machine learning guided by density functional theory and molecular dynamics for designing high performance magnesium alloys</i>	<i>National research foundation of South Korea</i>	<i>300,000,000 (Korean won)</i>
2017-2020	PI	2017R1C1B5017204	<i>Ceramic nanoparticles and plastic deformation for optimizing mechanical properties of mg alloys</i>	<i>National research foundation of south Korea</i>	<i>90,000,000 (Korean won)</i>

7.3. Publications

As the main outcome of my research, I have published more than 60 SCI papers as enlisted on the Web of Science, in journals such as; *progress in polymer science, scientific reports, journal of alloys and compounds, materials science and engineering A, journal of materials science, polymer degradation and stability, polymer bulletin, journal of applied polymers science, and materials letters*. I have also produced a number of other scientific book chapters and articles.

List of publications

1. Russlan J, Kang YS, **Hamad K***, Lattice Thermal Conductivity: An Accelerated Discovery Guided by Machine Learning. ACS applied materials and interfaces. Accepted **2021**.
2. Russlan J, Abuhmed T, Kim JG, **Hamad K***, Crystal structure guided machine learning for the discovery and design of intrinsically hard materials. Journal of materiomics. Accepted **2021**.
3. Malik A, Chaudry UM, **Hamad H***, Jun TS Microstructure Features and Superplasticity of Extruded, Rolled and SPD-Processed Magnesium Alloys: A Short Review. Metals. **2021**, 11(11), 1766
4. Gukin Han, Yeonju Noh, Umer Masood Chaudry, Sung Hyuk Park, **Kotiba Hamad**, Tea-Sung Jun, {10–12} extension twinning activity and compression behavior of pure Mg and Mg-0.5 Ca alloy at cryogenic temperature. Materials science and engineering A. Accepted **2021**.

5. Russlan J, Abuhmed T, **Hamad K***, Age-hardening behavior guided by the multi-objective evolutionary algorithm and machine learning. Journal of alloys and compounds. Accepted **2021**.
6. Russlan J, Kang YS, Kim JG, **Hamad K***, Machine learning guided discovery of super-hard high entropy ceramics. Materials Letters. Accepted **2021**
7. Chaudry UM, Tekumalla S, Gupta M, **Hamad K***. Designing highly ductile magnesium alloys: Current status and future challenges. Critical Reviews in Solid State and Materials Science. Accepted **2021**.
8. **Hamad K***, Choi YS, Chaudry UM. Atomic scale insights into the plasticity of iron-phosphorus alloy. Materials letters. Accepted **2021**
9. Chaudry UM, **Hamad K***, Effect of calcium on the superplastic behavior of AZ31 magnesium alloy. Materials Science and Engineering A. Accepted **2021**.
10. A. Farooq, U.M. Chaudry, A. Saleem, K.M. Deen, **K. Hamad*** and Rafiq Ahmad. Sacrificial dissolution of the zinc electroplated and cold galvanized coated steel in saline and soil environments: A comparison. Materials. Accepted **2021**.
11. Chaudry UM, **Hamad K***, Abuhmed T. Machine learning-aided design of aluminum alloys with high performance. Materials Today Communications. Accepted **2021**.
12. Umer Masood Chaudry, Hafiz Waqar Ahmad, Muhammad Rehan Tariq, Ameer Farooq, Muhammad Kashif Khan, Farooq Sher, Hassan Zeb, **Kotiba Hamad***. Effect of Post Weld Heat Treatment on the Microstructure and Electrochemical Characteristics of Dissimilar Material Welded by Butter Method. Materials. 13 (**2020**) 4512.
13. Chaudry UM, **Hamad K***, Kim JG Optimisation of structure for enhancing the room-temperature stretch formability of magnesium alloy. Philosophical Magazine Letters. (**2020**)
14. Chaudry UM, **Hamad K***, Kim JG. A Further Improvement in the Room-Temperature Formability of Magnesium Alloy Sheets by Pre-Stretching. Materials. 13 (**2020**) 2633 (**IF: 3.01**).
15. Chaudry UM, **Hamad K***, Kim JG. Ca-induced Plasticity in Magnesium Alloy: EBSD Measurements and VPSC Calculations. Crystals. 10 (**2020**) 67 (**IF: 2.1**).
16. Ko YG, Kim YG, **Hamad K***. Microstructure optimization of low-carbon steel using differential speed rolling deformation followed by annealing. Materials Letters. 261, 127154, **2020 (IF: 3.20)**.
17. Ko YG, Chaudry UM, **Hamad K***. Microstructure and mechanical properties of AA6061 alloy deformed by differential speed rolling. Materials Letters. 259, 126870, **2020 (IF: 3.20)**.

18. **Hamad K***, Ko YG, Continuous differential speed rolling for grain refinement of metals: processing, microstructure and properties. *Critical Reviews in Solid State and Materials Science*. Accepted **2019 (IF: 8.01)**.
19. Chaudry UM, Kim TH, Park SD, Kim YS, **Hamad K***, Ko YG, Kim JG, Dynamic recrystallization behavior of AZ31-0.5 Ca magnesium alloy during warm rolling. *Materials Science Engineering A* 762 (**2019**) 138-142 (**IF: 4.51**).
20. Chaudry UM, **Hamad K***, Kim JG, On the ductility of magnesium based materials: A mini review. *Journal of Alloys and Compounds*. 792 (**2019**) 652-664 (**IF: 4.62**).
21. Ko YG, Kim MJ, **Hamad K***, Structural evolutions and mechanical properties of IF steel deformed by differential speed rolling at various per-pass-thickness reductions. *Materials Letters* 250 (**2019**) 178-181 (**IF: 3.211**).
22. Chaudry UM, Kim YS, **Hamad K***, Effect of calcium on room-temperature formability of AZ31 Mg alloys. *Materials Letters* 238 (**2019**) 305-308 (**IF: 3.21**).
23. Chaudry UM, Kim TH, Park SD, Kim YS, **Hamad K***, Kim JG. Effects of calcium on the activity of slip systems in AZ31 magnesium alloy. *Materials Science Engineering A* 739 (**2019**) 289-294 (**IF: 4.51**).
24. **Hamad K***, Highly-Ductile Magnesium Alloys: Atomistic-Flow Mechanisms and Alloy Designing. *Materials*. 12 (**2019**)1934 (**IF: 3.01**)
25. Chaudry UM, Kim TH, Park SD, Kim YS, **Hamad K***, Kim JG. On the high formability of AZ31-0.5Ca magnesium alloy. *Materials* 11(**2018**) 1-15 (**IF: 2.972**).
26. **Hamad K***, Kaseem M, Ayyoob M, Joo JH, Deri F. Polylactic acid blends: the future of green, tough and light. *Progress in Polymer Science*. 85 (**2018**) 83-127. (**IF: 29.6**) *Most cited and journal cover (highly cited paper: web of science)*.
27. Chaudry UM, **Hamad K***, Fabrication and characterization of PLA/PP/ABS ternary blend. *Polymer Engineering and Science*. Accepted **2019 (IF: 1.951)**.
28. Ko YG, **Hamad K***, Structural features and mechanical properties of AZ31 Mg alloy warm-deformed by differential speed rolling. *Journal of Alloys and Compounds*. 744 (**2018**) 96-103 (**IF: 4.65**).
29. Ko YG, **Hamad K***, Analyzing the Thermal Stability of an Ultrafine Grained Interstitial Free Steel Fabricated by Differential Speed Rolling. *Materials Science Engineering A*. 726 (**2018**) 32-36 (**IF: 4.51**).
30. Ko YG, **Hamad K***, Microstructure stability and mechanical properties of ultrafine grained 5052 Al alloy fabricated by differential speed rolling. *Materials Science Engineering A*. 733(**2018**) 24-27 (**IF: 4.51**).

31. Ko YG, **Hamad K***, Annealing Behavior of 6061 Al Alloy Subjected to Differential Speed Rolling Deformation. *Metals*. 7 (2017) 494-302 (IF: 2.259).
32. Kassem M, **Hamad K**, Deri F, Ko YG. Effect of wood fibers on the rheological and mechanical properties of polystyrene/wood composites. *Journal of Wood Chemistry and Technology*. 37 (2017) 251-260 (IF: 1.880).
33. Kassem M, **Hamad K**, Deri F, Ko YG. A review on recent researches on polylactic acid/carbon nanotube composites. *Polymer Bulletin*. 74 (2017) 2921-2937 (IF: 1.858).
34. Ko YG, **Hamad K***, On the Microstructure Homogeneity of AA6061 Alloy After Cross Shear Deformations. *Advanced Engineering Materials*. 19 (2017) 1-5 (IF: 2.906).
35. **Hamad K**, Ko YG. Electron backscatter diffraction and performance of a severely deformed steel. *Journal of Materials Science*. 52 (2017) 3936-3945 (IF: 3.442).
36. Ko YG, **Hamad K***, On the Considerability of DSR (Differential Speed Rolling) as a Severe Plastic Deformation Method. *Advanced Engineering Materials*. 19 (2017)1-5 (IF: 2.906).
37. Ahn BW, Kim JH, **Hamad K**, Jung SB. Microstructure and mechanical properties of a B₄C particle-reinforced Cu matrix composite fabricated by friction stir welding. *Journal of Alloys and Compounds*. 693 (2017) 688-691 (IF: 4.175).
38. **Hamad K**, Ko YG. A cross-shear deformation for optimizing the strength and ductility of AZ31 magnesium alloys. *Scientific Reports* (2016). *Scientific Reports*. 6, 29954; doi: 10.1038/srep29954 (2016) (IF: 4.011).
39. **Hamad K**, Yang HW, Ko YG. Interpretation of annealing texture changes of severely deformed Al-Mg-Si alloy. *Journal of Alloys and Compounds*. 687 (2016) 300-305 (IF: 4.175).
40. **Hamad K**, Ko YG. Annealing characteristics of submicrocrystalline low-carbon steel processed by differential speed rolling method. *Metallurgical and Materials Transactions A*. 47 (2016) 2319-2334 (IF: 1.985).
41. Kassem M, **Hamad K**, Ko YG. Fabrication and materials properties of polystyrene/carbon nanotube (PS/CNT) composites: A review, *European Polymer Journal*. 79 (2016) 36-62 (IF: 3.621).
42. **Hamad K**, Kassem M, Deri F, Ko YG. Mechanical properties and compatibility of polylactic acid/polystyrene polymer blend, *Materials Letters*. 164 (2016) 409-412 (IF: 3.091).
43. Kassem M, **Hamad K**, Deri F, Ko YG. Material properties of polyethylene/wood composites: A review of recent works, *Polymer Science (Part A)*. 57 (2015) 689-703 (IF: 0.984).

44. Kaseem M, **Hamad K**, Park JH, and Ko YG. Rheological properties of ABS/wood plastic composites, *European Journal of Wood and Wood Products*. 73 (2015) 701-703 (IF: 1.901).
45. Kaseem M, **Hamad K**, Yang HW, Deri F, and Ko YG. Melt Rheology of Poly(vinylidene fluoride) (PVDF) /Low Density Polyethylene (LDPE) Blends, *Polymer Science (Part A)*. 57 (2015) 233-238 (IF: 0.984).
46. **Hamad K**, Kaseem M, Yang HW, Deri F, and Ko YG. Properties and medical applications of polylactic acid: A review. *Express Polymer Letters*. 9 (2015) 435-455 (IF: 3.621) (**highly cited paper: web of science**).
47. **Hamad K**, Ko YG. Effect of roll speed ratio on microstructure evolution and mechanical properties of 0.18 wt. % carbon steel deformed by differential speed rolling, *Materials Letters*. 160 (2015) 213-217 (IF: 3.091).
48. **Hamad K**, Park JH, Ko YG. Finite element analysis of deformation behavior in Al-2.2wt.% Mg alloy subjected to differential speed rolling, *Journal of Materials Engineering and Performance*. 24 (2015) 2990-3001 (IF: 1.476).
49. Kaseem M, **Hamad K**, Chung BK, Ko YG. Microstructure and plastic anisotropy of fine grained AZ31 magnesium alloy fabricated by differential speed rolling at 473 and 573 K. *Materials Research Innovations*. 9 (2015) 477-480 (IF: 0.830).
50. Kaseem M, **Hamad K**, Chung BK, Ko YG. Effect of Deformation Temperature on Microstructure and Mechanical Properties of AZ31 Mg Alloy Processed by Differential-Speed Rolling. *Journal of Materials Science and Technology* 31 (2015) 498-503 (IF: 5.040).
51. **Hamad K**, Park JH, Widiatar IP, Ko YG. Strain and crystallographic texture evaluation of interstitial free steel cold deformed by differential speed rolling. *Material Letter* 147 (2015) 38-41 (IF: 3.091)..
52. **Hamad K**, Chung BK, Ko YG. Effect of deformation path on microstructure, microhardness and texture evolution of interstitial free steel fabricated by differential speed rolling, *Materials Characterization*. 49 (2014) 203-214 (IF: 3.220).
53. **Hamad K**, Megantoro RB, Ko YG. Microstructure and texture evolution in low carbon steel deformed by differential speed rolling (DSR) method, *Journal of Materials Science* 94 (2014) 6608-6619 (IF: 3.442).
54. **Hamad K**, Chung BK, Ko YG (2014) Microstructure and mechanical properties of severely deformed Mg-3%Al-1%Zn alloy via isothermal differential speed rolling at 453 K. *Journal of Alloys and Compounds* 625 (2014) S590-S594 (IF: 4.175).
55. **Hamad K**, Kaseem M, Deri F, Biodegradable polymer blends and composites: An overview, *Polymer Science (Part A)*. 56 (2014) 812-829 (IF: 0.984).

56. **Hamad K***, Ko YG, Kaseem M, Deri. Effect of acrylonitrile- butadiene- styrene on flow behavior and mechanical properties of polylactic acid / low density polyethylene blend. Asia-Pacific Journal of Chemical Engineering 9 (2014) 349-353 (IF: 1.396).
57. **Hamad K***, Kaseem M, Deri F. Recycling of waste from polymer materials: An overview of the recent works, Polymer Degradation and Stability 98 (2013) 2801-2812 (IF: 3.780).
58. Kaseem M, **Hamad K**, Deri F. Slit die rheology of thermoplastic starch during extrusion process, International Journal of Plastic Technology, 17 (2013) 51-60 (IF:-).
59. Kaseem M, **Hamad K**, Deri F. On-line rheological and mechanical measurement of ABS/starch composites, International Journal of Polymeric Materials. 62 (2013) 260-264 (IF: 1.658).
60. **Hamad K***, Kaseem M, Deri F. Poly(lactic acid)/low density polyethylene polymer blends: Preparation and characterization, Asia-Pacific Journal of Chemical Engineering. Special Issue: 7 (2012) S310-S316 (IF: 1.396).
61. Kaseem M, **Hamad K**, Deri F. Preparation and studying properties of thermoplastic starch/acrylonitrile-butadiene-styrene blend, International Journal of Plastic Technology. 16 (2012) 39-49 (IF: -).
62. Kaseem M, **Hamad K**, Deri F. Rheological and mechanical properties of polypropylene/thermoplastic starch blend, Polymer Bulletin. 68 (2012)1079-1091 (IF: 1.858).
63. Kaseem M, **Hamad K**, Deri F. Preparation and studying properties of polybutene-1/thermoplastic starch blends, Journal of Applied Polymer Science. 124 (2012) 3092-3098 (IF: 2.188).
64. Kaseem M, **Hamad K**, Deri F. Thermoplastic starch blends: A review of recent works. Polymer Science (Part A) 54 (2012) 165-176 (IF: 0.985).
65. **Hamad K***, Kaseem M, Deri F. Effect of recycling on rheological and mechanical properties of poly(lactic acid)/polystyrene polymer blend, Journal of Materials Science. 46 (2011) 3013-3019 (IF: 3.442).
66. **Hamad K***, Kaseem M, Deri F. Rheological and mechanical characterization of poly(lactic acid)/polypropylene polymer blends, Journal of Polymer Research. 18 (2011) 1799-1806 (IF: 1.530).
67. **Hamad K***, Kaseem M, Deri F (2011) Melt rheology of poly(lactic acid)/low density polyethylene polymer blends, Advances in Chemical Engineering and Science. 4 (2011) 208-214 (IF: -).
68. **Hamad K***, Kaseem M, Deri F. Rheological and mechanical properties of poly(lactic acid)/polystyrene polymer blend, Polymer Bulletin. 65 (2010) 509-519 (IF: 1.858).

<https://scholar.google.co.uk/citations?user=TeX3VdYAAAAJ&hl=en>

7.3. Special Issue Editor at Materials

- ✓ **"Highly-Ductile Magnesium Alloys: Atomistic-Flow Mechanisms and Alloy Designing"**

https://www.mdpi.com/journal/materials/special_issues/ductile_alloy

- ✓ **"Microstructure and Mechanical Properties of Alloys and Steels"**

https://www.mdpi.com/journal/materials/special_issues/Microstructure_Mechanical_Properties_Alloys_Steels

7.4. Book chapter

Hamad K (2011) Polylactic acid polymer blends. Book chapter (Polylactic Acid: Synthesis, Properties and Applications). Nova Science Publishers, USA (Editor: Piemonte Vincenzo). (www.novapublishers.com/catalog/product_info.php?products_id=28744).