CURRICULUM VITAE

NAOYA UENE

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EDUCATION

Visiting Scholar ***Sep 2021 – Mar 2022***
Pennsylvania State University, State College, Pennsylvania, USA

Japan Doctor of Engineering ***Apr 2020 – present***
Tohoku University, Sendai, Miyagi, Japan

Japan Master of Engineering ***Apr 2018 – Mar 2020***
Tohoku University, Sendai, Miyagi, Japan

Japan Bachelor of Engineering ***Apr 2015 – Mar 2018***
National Institute of Technology, Yonago College, yonago,Tottori, Japan

PUBLICATIONS

Journal Paper and International Conference Proceedings (Peer-reviewed)

1. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive force-field molecular dynamics simulation for the surface reaction of SiH_x (x =2–4) species on Si(100)-(2×1):H surfaces in chemical vapor deposition processes」, 『Computational Materials Science』, Elsevier, Vol.204, 111193, (2022)
2. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive Force-Field Molecular Dynamics Study of the Effect of Gaseous Species on Silicon-Germanium Alloy Growth by PECVD Techniques」, 『Proceedings of the 2021 International Conference on Simulation of Semiconductor Processes and Devices』, IEEE, (2021)
3. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive Force-Field Molecular Dynamics Study of SiGe Thin Film Growth in Plasma Enhanced Chemical Vapor Deposition Processes」, 『ECS Transactions』, IEEE, Vol.98, No.5, pp.177-184, (2020)
4. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive Force-Field Molecular Dynamics Study of the Silicon-Germanium Deposition Processes by Plasma Enhanced Chemical Vapor Deposition」, 『Proceedings of the 2020 International Conference on Simulation of Semiconductor Processes and Devices』, IEEE, DOI 10.23919/SISPAD49475.2020.9241688, (2020)
5. **N. Uene**, H. Takeuchi, Y. Hayamizu, and T. Tokumasu, 「Study of reflection models of gas molecules on water adsorbed surfaces in high-speed flows」, 『Journal of Fluid Science and Technology』, JSME, Vol.15, No.1, JFST0005, (2020)
6. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Molecular Dynamics Simulation of Thermal Chemical Vapor Deposition for Hydrogenated Amorphous Silicon on Si (100) Substrate by Reactive Force-Field」, 『Proceedings of the 2019 International Conference on Simulation of Semiconductor Processes and Devices』, IEEE, DOI 10.1109/SISPAD.2019.8870438, (2019)
7. **N. Uene**, H. Takeuchi, Y. Hayamizu, and T. Tokumasu, 「Scattering Properties of Gas Molecules on Water Adsorbed Surfaces in High Knudsen Number Flows」, 『Proceedings of the 21st Australasian Fluid Mechanics Conference』, Australasian Fluid Mechanics Society, ISBN 978-0-646-59784-3, (2018)
8. **N. Uene**, H. Takeuchi, and Y. Hayamizu, 「Scattering Behaviors of Gas Molecules on Water Adsorbed Surfaces」, 『Proceedings of the 9th JSME-KSME Thermal and Fluids Engineering Conference』, JSME and KSME, (2017)

CONFERENCE PRESENTATIONS

International Conference

1. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive Force-Field Molecular Dynamics Study of the Effect of Gaseous Species on Silicon-Germanium Alloy Growth by PECVD Techniques」,『2021 International Conference on Simulation of Semiconductor Processes and Devices』, Dallas, USA, September 2021
2. **N. Uene**, T. Mabuchi, Y. Jin, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Density Functional Study on ALD Precursors for Hexagonal Boron Nitride Deposition」, 『21st International Conference on Atomic Layer Deposition』, Florida (all-virtual), USA, June 2021
3. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive Force-Field Molecular Dynamics Simulations of the Silicon-Germanium Deposition Process for the Semiconductor Manufacturing」, 『17th International Conference on Flow Dynamics』, No. 17, Sendai (all-virtual), Japan, November 2020
4. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive Force-Field Molecular Dynamics Study of SiGe Thin Film Growth in Plasma Enhanced Chemical Vapor Deposition Processes」, 『Pacific Rim Meeting of Electrochemical and Solid-State Science』, Hawaii (all-virtual), USA, October 2020
5. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Reactive Force-Field Molecular Dynamics Study of the Silicon-Germanium Deposition Processes by Plasma Enhanced Chemical Vapor Deposition」,『2020 International Conference on Simulation of Semiconductor Processes and Devices』, Kobe (all-virtual), Japan, September 2020
6. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「A Reactive Force-Field Molecular Dynamics Study of Deposition Mechanisms during Chemical Vapor Deposition Processes」, 『16th International Conference on Flow Dynamics』, No. 75, Sendai, Japan, November 2019
7. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Molecular Dynamics Simulation of Thermal Chemical Vapor Deposition for Hydrogenated Amorphous Silicon on Si (100) Substrate by Reactive Force-Field」, 『2019 International Conference on Simulation of Semiconductor Processes and Devices』, Udine, Italy, September 2019
8. **N. Uene**, H. Takeuchi, Y. Hayamizu, and T. Tokumasu, 「Scattering Properties of Gas Molecules on Water Adsorbed Surfaces in High Knudsen Number Flows」, 『21st Australasian Fluid Mechanics Conference』, No. 719, Adelaide, Australia, December 2018
9. **N. Uene**, H. Takeuchi, Y. Hayamizu, and T. Tokumasu, 「A Molecular Dynamics Study for Scattering Properties of Gas Molecules on Water Adsorbed Surfaces」, 『15th International Conference on Flow Dynamics』, No. 38, Sendai, Japan, November 2018
10. **N. Uene**, H. Takeuchi, Y. Hayamizu, T. Gonda, S. Morita, S. Ohtsuka, and K. Yamamoto, 「Gas-Surface Scattering Properties on Water Adsorbed Surfaces」, 『The 12th International Symposium on Advanced Science and Technology in Experimental Mechanics』, No. S008, Kanazawa, Japan, November 2017
11. **N. Uene**, H. Takeuchi, and Y. Hayamizu, 「Scattering Behaviors of Gas Molecules on Water Adsorbed Surfaces」, 『The 9th JSME-KSME Thermal and Fluids Engineering Conference』, No. 1229, Okinawa, Japan, October 2017
12. **N. Uene**, Y. Hayamizu, H. Takeuchi, and T. Gonda, 「Gas-Surface Scattering Properties Based on the Molecular Dynamics Analysis」, 『The 11th International Symposium on Advanced Science and Technology in Experimental Mechanics』, No. 11, Osaka, Japan, September 2016

Domestic Conference (in Japanese)

1. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Numerical Simulation Study for Optimization of Material/Process and Composition/Structure in CVD/ALD thin film growth by Reactive Molecular Dynamics Method and Density Functional Theory」, 『応用物理学会分科会 229 回研究会』, all-virtual, Japan, July 2021 (*Invited*)
2. T. Tokumasu, **N. Uene**, T. Mabuchi, M. Zaitsu, and S. Yasuhara, 「Analysis of CVD/ALD thin film deposition mechanism by reactive molecular dynamics simulation and quantum chemical calculation」, 『Technical Committee on Silicon Device and Materials (SDM)』, all-virtual, Japan, November 2020, (*Invited*)
3. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu,「Molecular Dynamics Study of Surface Reaction Mechanisms in Chemical Vapor Deposition Processes」, 『57th National Heat Transfer Symposium of Japan』, Ishikawa (all-virtual), Japan, June 2020
4. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Molecular Dynamics Study of Initial Deposition Mechanism in Chemical Vapor Deposition Method」, 『The Japan Society of Fluid Mechanics Annual Meeting 2019』, Tokyo, Japan, September 2019
5. **N. Uene**, T. Mabuchi, M. Zaitsu, S. Yasuhara, and T. Tokumasu, 「Molecular Dynamics Study of Si Thin Film Formation Process Using Reactive Force-Field」, 『Mechanical Engineering Congress, 2019 Japan』, Akita, Japan, September 2019
6. **N. Uene**, H. Takeuchi, T. Tokumasu, and Y. Hayamizu, 「Study of Reflection Boundary Conditions on Solid Wall Surfaces in High Knudsen Number Flows ~Influence of Adsorbed Water Molecules on Scattering Properties of Gas Molecules~」, 『Mechanical Engineering Congress, 2018 Japan』, Osaka, Japan, September 2018
7. **N. Uene**, H. Takeuchi, Y. Hayamizu, T. Gonda, S. Morita, S. Ohtsuka, and K. Yamamoto, 「Scattering Properties of Gas Molecules on Solid Wall Surfaces in High Knudsen Number Flows」, No. 707, Tokushima, Japan, March 2018
8. **N. Uene**, H. Takeuchi, Y. Hayamizu, T. Gonda, S. Morita, S. Ohtsuka, and K. Yamamoto, 「Scattering Properties of Gas Molecules on Solid Wall Surfaces in High Knudsen Number Flows」, No. 707, Tokushima, Japan, March 2018
9. **上根直也**，武内秀樹，早水康隆，権田岳，森田慎一，大塚茂，山本恭二「水分子吸着表面における気体分子散乱特性の分子動力学解析」,『JIP 環境技術研究会第 2 回シンポジウム』，山口，2017 年 12 月
10. **N. Uene**, H. Takeuchi, Y. Hayamizu, T. Gonda, S. Morita, S. Ohtsuka, and K. Yamamoto, 「Gas-Surface Scattering Properties on Water Adsorbed Surfaces Based on Molecular Dynamics Analysis」, No. 413, Hiroshima, Japan, March 2017
11. **上根直也**，武内秀樹，早水康隆，権田岳，森田慎一，山本恭二「分子動力学法による水分子吸着表面での気体分子散乱特性」,『第 18 回 日本流体力学会 中四国・九州支部講演会』，岡山，2016 年 11 月
12. **上根直也**，早水庸隆，柳瀬眞一郎，権田岳，森田慎一，大塚茂，山本恭二，「テイラー・ディーン流れを利用したマイクロミキサの実験的研究（流路の曲率の効果）」,『日本機械学会 流体工学部門講演会 第 94 期流体工学部門講演会』，No. 0106，山口，2016 年 11 月
13. **上根直也**，早水庸隆，柳瀬眞一郎，川邉俊彦，権田岳，森田慎一，大塚茂，山本恭二，「テイラー・ディーン流れを利用したマイクロミキサの実験的研究（混合過程の PIV/LIF 同時計測）」,『日本機械学会 中国四国学生会 第 46 回学生員卒業研究発表講演会』，No. 916，愛媛，2016 年 3 月

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HONORS AND AWARDS

1. **Poster Award**, Tohoku University ***July 2018***
2. **The Best Research Award**, The Japan Society for Experimental Mechanics ***Sep 2017***
3. **Ichiki Award**, The Japan Society of Mechanical Engineers ***Nov 2016***
4. **Encouragement Poster Award**, The Japan Society for Experimental Mechanics ***Sep 2016***
5. **Outstanding Performance Award (Study, Activities)**, N. I. T., Yonago College ***Mar2016***
6. **The Best Research Award**, The Japan Society of Mechanical Engineers ***Mar2016***
7. **Excellent Student Award**, Japan Society for Design Engineering ***Mar 2015***

GRANTS AWARDED

1. **JSPS Overseas Challenge Program for Young Researcher**, JSPS ***Sep 2021 – Feb 2022***
2. **Grant-in-Aid for JSPS Research Fellows**, JSPS ***Apr 2020 – present***
3. **Scholarship**, Ushio Foundation ***Apr 2018 – Mar2020***

REFERENCES

Takashi Tokumasu, PhD, Professor, Tohoku University (022) 217-5239,
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