

Takashi Sumigawa

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Personal Data

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EDUCATION

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| 2002 | PhD: Grant date: 25.3.2002 Department of Engineering Physics and Mechanics, Graduate School of Engineering, Kyoto University, Japan |
| 1998 | Master Department of Engineering Physics and Mechanics, Graduate School of Engineering, Kyoto University, Japan |

CURRENT AND PREVIOUS POSITIONS

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| 2021-present | Professor Department of Energy Conversion Science, Graduate School of Energy Science, Kyoto University |
| 2011-2021 | Associate Professor Department of Mechanical Engineering and Science, Graduate School of Engineering, Kyoto University |
| 2007-2010 | Senior Lecturer Department of Mechanical Engineering and Science, Graduate School of Engineering, Kyoto University |
| 2006-2007 | Postdoctoral Researcher Department of Mechanical Engineering and Science, Graduate School of Engineering, Kyoto University |
| 2005-2006 | Research Associate Department of Intelligent Machinery and Systems, Faculty of Engineering, Kyushu University |
| 2002-2003 | Researcher Mechanical Engineering Research Laboratory, Hitachi Ltd. |

FELLOWSHIPS, AWARDS AND PRIZES

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| 2019 | Best Paper Award, 5th International Conference on Materials and Reliability (Jeju, KOREA). Takashi Sumigawa |
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| 2017 | Outstanding Paper Award received from Smart Processing Society for Materials, Environment & Energy. |
| 2016 | Micro-Nano Engineering Excellent Paper Certificate of Merit received from Micro-Nano Science & Technology Division of JSME (The Japan Society of Mechanical Engineers). |
| 2016 | Award for Scientific Papers received from JSMS (The Society of Materials Science, Japan). |
| 2015 | Division Award (Category: New Technology Development) received from Materials & Processing Division of JSME (The Japan Society of Mechanical Engineers). |
| 2012 | Medal for Outstanding Paper received from JSME (The Japan Society of Mechanical Engineers). |
| 2009 | Kansai Branch President Award received from JSMS (The Society of Materials Science, Japan) Kansai Branch. |
| 2005 | Award for Young Engineers (Research) received from JSME (The Japan Society of Mechanical Engineers). |
| 2000 | Materials & Mechanics Division Presentation Award received from Materials & Mechanics Division of JSME (The Japan Society of Mechanical Engineers). |
| 1995 | Hatakeyama Award received from JSME (The Japan Society of Mechanical Engineers). |

Research Funding

- “Exploring scientific principles of nano-micro fatigue and achieving ultra-high fatigue strength metals”, JST, CREST Grant Number JP1124401 (2020-2025).
- “Elucidation of nano-flexoelectricity and creation of buckling memory devices”, Grant-in-Aid for Scientific Research(A), JSPS KAKENHI Grant Number 21H04534 (2021-2023).
- “Construction of design basis for controlling collective dislocation structure and creation of nanomultiphysics network”, Grant-in-Aid for Challenging Research (Pioneering), JSPS KAKENHI Grant Number 20K20963 (2020-2021).
- “Creation of mechanistic nano-defect control engineering”, Grant-in-Aid for Challenging Research (Pioneering), JSPS KAKENHI Grant Number 18K18807 (2018-2019).
- “Fatigue of metallic nanomaterials and its mechanics”, Grant-in-Aid for Scientific Research(A), JSPS KAKENHI Grant Number 18H03753 (2018-2020).
- “Elucidation of the characteristic fatigue damage mechanism of nano-metallic materials and development of its mechanical basis”, Grant-in-Aid for Scientific Research(A), JSPS KAKENHI Grant Number 15H02210 (2015-2017).
- “Development of resonant fatigue testing method for metal nanomaterials and elucidation of fatigue damage mechanism”, Grant-in-Aid for Challenging Exploratory Research, JSPS KAKENHI Grant Number 26630009 (2014-2015).
- “Fabrication of morphology-controlled metal nano-element array thin films and hierarchical elucidation of novel mechanical properties”, Grant-in-Aid for Early-Career Scientists(A), JSPS KAKENHI Grant Number 24686018 (2012-2014).
- “Fabrication of nanowire specimens with controlled shape and crystal orientation and development of tensile testing method by mechanical design”, Grant-in-Aid for Challenging Exploratory Research, JSPS KAKENHI

Grant Number 23656085 (2013-2014).

- “Elucidation of the dynamic mechanism of dislocations governing the nonlinear behavior of metal nanostructures”, Grant-in-Aid for Early-Career Scientists(A), JSPS KAKENHI Grant Number 21686013 (2009-2011).
- “Investigation of submicron size effects in single crystal microstructures by compression test in TEM”, Grant-in-Aid for Early-Career Scientists(B), JSPS KAKENHI Grant Number 19760065 (2007-2008).

Representative Papers (peer-reviewed)

1. Y. Zhuo, Z. Xia, Y. Qi, **T. Sumigawa**, J. Wu, P. Šesták, Y. Lu, V. Håkonsen, T. Li, F. Wang, W. Chen, S. Xiao, R. Long, T. Kitamura, L. Li, J. He and Z. Zhang, "Toughening and Stiffening Elastomers with Strong Eightfold Hydrogen Bonding", *Advanced Materials* (IF 27.398) (2021) 2008523.
 2. **T. Sumigawa**, S. Uegaki, T. Yukishita, S. Arai, Y. Takahashi, and T. Kitamura, "FE-SEM in situ Observation of Damage Evolution in Tension-compression Fatigue of Micro-sized Single-crystal Copper", *Materials Science and Engineering A* (IF 4.081), Vol. A 764 (2019) 138218.
 3. **T. Sumigawa**, B. Kim, Y. Mizuno, T. Morimura, and T. Kitamura, "In situ Observation on Formation Process of Nanoscale Cracking during Tension-compression Fatigue of Single Crystal Copper Micron-scale Specimen", *Acta Materialia* (IF 7.293), Vol. 153 (2018) pp. 270-278.
 4. **T. Sumigawa**, T. Shimada, S. Tanaka, H. Unno, N. Ozaki, S. Ashida, and T. Kitamura, "Griffith Criterion for Nanoscale Stress Singularity in Brittle Silicon", *ACS Nano* (IF 13.903), Vol. 11 (6) (2017) pp. 6271–6276.
 5. B. Jang, B. Kim, J.-H. Kim, H.-J. Lee, **T. Sumigawa**, T. Kitamura, "Asynchronous cracking with dissimilar paths in multilayer graphene", *Nanoscale* (IF 6.970), Vol.9 (2017) pp. 17325-17333.
 6. Y. Zou, P. Kuczera, A. Sologubenko, **T. Sumigawa**, T. Kitamura, W. Steurer and R. Spolenak, "Superior room-temperature ductility of typically brittle quasicrystals at small sizes" *Nature communications* (IF 11.880), Vol. 7 (2016) 12261.
 7. **T. Sumigawa**, K. Matsumoto, H. Fang, T. Kitamura, "Formation of Slip Bands in Poly-crystalline Nano-copper under High-cycle Fatigue of Fully-reversed Loading", *Materials Science and Engineering A* (IF 4.081), Vol. 608 (2014) pp. 221-228.
 8. **T. Sumigawa**, R. Shiohara, K. Matsumoto, T. Kitamura, "Characteristic Features of Slip Bands in Submicron Single-Crystal Gold Component produced by Fatigue", *Acta Materialia* (IF 7.293), Vol. 61 (2013) pp. 2692-2700.
 9. **T. Sumigawa**, T. Murakami, and T. Kitamura, "Fatigue Strength of the Cu/Si Interface in Nano-components", *Materials Science and Engineering A* (IF 4.081), Vol. 528 (2011) pp. 5158-5163.
 10. **T. Sumigawa**, T. Shishido, T. Murakami, and T. Kitamura, "Interface Crack Initiation due to Nanoscale Stress Concentration", *Materials Science and Engineering A* (IF 4.081), Vol. 527, No. 18-19 (2010) pp. 4796-4803.
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